Avenues.

THAT celebrated improver, Shenstone, the poet of the Leasowes, occupied and amused himself in beautifying his place with artificial objects, avenues, lakes, and rustic designs. One of his plans was to create avenues in this mode: he planted large trees nearest the point of view, and smaller ones receding in height but approaching each other as the distance increased; the terminus of the view was a piece of water, an obelisk, summer-house, or some object of interest, and the effect was an increase of apparent *distance;* the object at the end was placed to the eye further off. This play upon the eye is one of the great arts in landscape making; you see its effects in the various daguerreian deceptions, not the least of which is the one by which the sight is made to embrace—to wind round an object—in fact, to deceive itself into a new use of its powers; in some cases to improve and give pleasure to one of our most valued senses. Very much may be done in landscape by a thorough understanding of the principles involved; without the principles, *or* without great observation of results, planting for beauty is mostly ineffective and paltry. The neighbors of Shenstone, whom he outshone, and with whom he was not popular, took pains to mortify him by showing company his vistas and avenues from the wrong point! looking through the little end of his telescopic views, which brought the point of view nearer, and the poor poet had to endure the shouts of laughter which resounded through the short tube he had made himself believe, from his own chosen point of view, was vastly longer than the sounds he heard would indicate. So it is: we all of us choose our own point of view, and when some rude body upsets our illusion with facts and figures, we are let down to realities.

As regards the most beautiful tree for deciduous avenues in the middle climate of the United States, or wherever it will grow, the best is the Tulip Poplar, *Liriodendron tulipifera*, especially if the avenue is a wide one, say eighty feet between the rows, while for an evergreen vista we would employ the Hemlock, *Abies Canadensis*. For narrower deciduous rows, the Sugar Maple would be our next choice. Two more beautiful trees for such a purpose cannot well be chosen. The Tulip Poplar is too rarely employed for this purpose; we do not know why such a beautiful and unique tree should be so much neglected, unless it be the difficulty of transplanting them of a desirable size. The time will come when purchasers will find it to their advantage to pay nurserymen for removing their young trees in the nursery rows, so that on their final moving a successful growth may be guaranteed; discriminating and experienced planters know the value of those that have been prepared for removal, but the masses do not; and until they do, it will not pay the grower to transplant his young stock annually.

A safe and almost sure practice to pursue with the Tulip Poplar, Sweet-gum, Sour-gum, Hickories, Magnolias, and all trees that are usually found impatient of removal, is, to cut them down to the surface of the soil as soon as transplanted. This seems to be a barbarous method, but we are convinced that many which otherwise eke out a miserable existence for

years, would grow up at once into healthy trees; the finest Tulip Poplars we know of have undergone this process.

The Norway and Sycamore Maples are fine for shading walks, forming a dense, clean mass of foliage, and the former one of the best round-headed trees. Much of the beauty of foliage depends upon vigorous and healthy growth. We find that a heavy top-dressing of manure, applied in the fall, increases the depth of color and size of the leaves; once in two or three years this will produce a decidedly beneficial effect.

In the Southern States the Live Oak and Evergreen Magnolia are unrivalled for avenues. Alas! that they are denied to us.

We should not forget, too, the hickories; an avenue of the best of these would be superb. It is possible, as Ruskin justly remarks, in this species of trees, to obtain a serene simplicity of grace, which is a better help to the study of gracefulness, as such, than any of the wilder groupings of the hills; so also there are certain conditions of symmetrical luxuriance developed in the park and avenue, rarely rivalled in their way among mountains. *But*, "the resources of trees are not developed till they have difficulty to contend with; neither their tenderness of brotherly love and harmony, till they are forced to choose their ways of various life where there is contracted room for them, talking to each other with their restrained branches. The various actions of trees rooting themselves in inhospitable rocks, stooping to look into ravines, hiding from the search of glacier winds, reaching forth to the rays of rare sunshine, crowding down together to drink at sweetest streams, climbing hand in hand among the difficult slopes, opening in sudden dances round the mossy knolls, gathering in companies at rest among the fragrant fields, gliding in grave procession over the heavenward ridges."

HOW WOOD IS FORMED.

BY YARDLEY TAYLOR, LOUDON COUNTY, VIRGINIA.

In the 5th number of the present volume of the *Horticulturist* is an article headed "Bad Grafting—How wood is formed," taken from the "*Gardener's Chronicle.*" The conclusions of the writer do not appear to be consistent with correct principles of vegetable physiology, principles now being received and explained by the late discoveries of the microscope in regard to growth, and which give a satisfactory explanation of that phenomenon. The positions advanced are based upon the supposition of the downward flow of sap in forming new wood, and that this sap is vitalized by the action of light in the leaves. A plate is given in which is shewn a large stock on the side of which a small scion had been whip-grafted upon "one side," and after growing together some time, "upon applying a little lateral pressure the scion came away," as represented in the cut, "bringing with it a considerable quantity of young wood." From these representations the conclusion is arrived at, that "the scion had formed a woody sheath of its own, which covered over the wood of the stock and was independent of it," and that "it is obvious, indeed, that the new wood is really derived in either a solid or liquid form from the two branches," that is, of the graft. That these conclusions are incorrect, I propose to show, first,

that no growth ever takes place in a graft but by the ascent of sap from the stock. We who are in the habit of grafting, know that, unless the union of the inner bark of the stock and graft is so close as to admit of the passage of sap upward, no growth can take place in the graft. It does not possess the power to send down growth to cover up the stock. When freshly cut wood, such as that of the stock and graft, is excluded from light and kept in a moist condition, granules of new wood are emitted at the junction of the wood and bark, but nowhere else; and if the two are in proper position, a union takes place from the affinity of each for the other; and this takes place before even the buds of the graft begin to swell, and before any leaves are developed to aid in sending down material for new wood as contended for.

Secondly, this theory of the downward flow of matter for new wood is shewn not to be true. The discoveries by the microscope have shewn, that growth is made by the deposition of cell matter, and that these cells are formed from matter imbibed by the sap from the soil, and deposited where formed; some are added to the extremities of the spongioles or rootlets, and thus the root is elongated; others are added at the sides to increase in size; and thus all the way upward they are deposited to form new layers of wood, and to fill up the pores of the sap-wood and gradually form heart-wood. The author of the article on botany, in the new American Encyclopædia now published, shows conclusively, that, considering the vast amount of water known to be given off by the leaves, and that this amount being taken in by the roots and containing mineral matter, or wood-forming matter, even in small quantities, there is abundant reason to conclude that sufficient is imbibed to account for all the growth we see. The downward flow of sap is by this writer entirely rejected.

In a late number of the *American Farmer*, is an article translated from the *Flore des Serres*, published in Belgium, by one of the editors, in which is the following paragraph: "Modern chemistry has afforded us many lights upon the nature of the elements that constitute the nourishment of plants, and if certain doubts or errors upon this subject still exist, they must not be attributed to science—that is always true—but to prejudices, of which unhappily we are not always willing to divest ourselves. Thus it is not correct to believe that the sap is elaborated and modified in the leaves, and that it redescends thence in the bark down to the roots. In fact, that is not possible. Doubtless the carbonic acid is decomposed in the leaves, but that act has no direct connection with the nutrition of the plant; it has as its sole object the preservation of the leaves for the purpose of transpiration. This truth will one day be generally recognized, when physiology shall have furnished the proof that the functions of leaves can only consist in transpiration, and that, in order to be able to fulfil these functions during their continuance, it is requisite that the cells of the parenchyma should be continually renewed."

Electricity is acknowledged to play an important part in the phenomena of growth, and the well known fact of the increase of growth by electrical action, together with the further known fact of the power of electricity to release oxygen from its compounds, and thus decompose carbonic acid gas, is strongly confirmatory of this view. The air and the earth are often positive and negative to each other; sometimes it is extremely difficult to excite electrical action by a machine, at other times it is easily done.

When the air is positive and the earth negative, every point of a leaf and every twig is a conductor to receive and convey the electricity to the earth; and as it has a strong affinity for water, it passes through the sap exactly in the place to meet the carbonic acid gas, and decompose it precisely when needed for growth. Carbon being positive is deposited, while the oxygen being negative is given off, exactly as is done in the process of electrotyping. The same effect is produced when the earth is positive and the air is negative.

This principle being admitted, we have a satisfactory explanation of the "puzzling phenomena" that we meet with, and which have puzzled and ever will puzzle those who rely on a downward flow of sap. Water taken in by the spongioles and rootlets containing carbonic acid, and other matters derived from the soil, and carried up as sap, and in its passage being decomposed and deposited as growth in the plant, will account for all we see in growth. Fruit grown from a graft will be of the variety of the graft, and from the stock will be its variety; thus we get clear of the difficulty met with by those who contend for the downward formation of wood, and find the stock to produce not the variety of the graft but its own.

This writer speaks of a willow which formed a sheath of wood several feet long over dead wood and beneath dead bark! I myself had a willow that was cut down about four feet above the ground; and on one side shoots put out near the top and grew to considerable size, at the same time the other side of the stump died and became rotten; when afterwards in removing the rotten part it was found that roots had put out of the new growth and descended through the rotten wood to the ground. Here is nothing strange; roots ordinarily never put out in the open air,—but in a dark moist condition, when materials for growth are to be had, they always do so under favorable circumstances; and the putting forth of roots under dead bark, only shows the efforts of nature to overcome impediments to growth.

In the plate referred to, there is a cross-section of the head of the stock and the insertion of the graft, showing the deposit of new wood near this junction alone. This is just what we might have expected, as no wood could be deposited but where a flow of sap could take place; consequently, on the side opposite to the graft there could be none. The cut parts of a graft and stock never unite, it is only the addition of layers of new wood enclosing them that makes a union.

This writer considers there are "two distinct systems of organization in our common trees, the one longitudinal, a mere provision for carrying the sap,—the other horizontal, called the medullary system;" and that "the latter alone has the power of furnishing new shoots;" that "it is perpetually growing outwards and fitting on its myriads of extremities to the surface of the wood beneath the bark;" and these two are simultaneous in their appearance, and coëxistent and coëval, but independent." To this it may be objected, that as the "medullary system," however important a part it may act, cannot be increased or continued in growth, but by the "provision for conveying the sap," it cannot be "independent" as claimed by this writer. "New shoots" are formed only by the accumulation of sap, and to say that "the provision for its conveyance" has no "power of furnishing new shoots," is giving "the medullary system" a character that known facts will not warrant. It has no power of increase, no separate action of its own, but is dependent entirely on the circulation of the sap for any increase.

To suppose that new shoots "necessarily come from the horizontal or medullary system," is making a distinction without a difference, for we all know that "the system for the conveyance of the sap" is included in every shoot, and without it it could not live nor exist. Many kinds of deciduous trees, if cut down in winter, on the approach of spring, by the accumulation of sap, will put out new shoots around the stump and grow off rapidly. Whether they are based on "the medullary system" or not, they are produced by the accumulation of sap, and that often where no previous buds had existed. Some writers have appeared to believe that they only appear where latent buds have existed; but this view is not borne out by facts. Their number is often many times more than the number of buds that ever existed in the same length, and even if there had been latent buds, where were they? they only could be in the outer epidermis or dead part of the bark, and could in no case have any connection with the living tissue, from which alone the shoots took their rise.

What the writer means by the terms, "physiological heretics" and "orthodox" in this question, is not easy to see; the science of vegetable physiology is too young yet for any but the credulous to assume the title of orthodox in its profession, and brand others as heretics. It may be with this as it has been with religion: those who by the majority were called heretics, were in truth the really orthodox, while those who claimed that title, by their actions gave the lie to their professions.

The animadversions of this writer on improper trimming of fruit trees are well-timed, and should be heeded by all who wish to take nature for their guide, and conform their action to her laws; but there is another kind of mutilation that is doing incalculable injury to the orchards in this country, and that is the deep cultivation in cropping our orchards. We cut and tear off all the surface roots of our trees, and compel them to force their roots down into a colder and more barren soil, barren at least of vegetable matter, and if we apply manure the crop is benefited but not the trees. This manner of treatment has injured our orchards greatly, and we shall ultimately find that we shall have to treat our orchards as we do our other crops,—allow them to have the full benefit of the surface soil, and grow no other crop with them, at least after the trees attain some size. If fruit is an object it is worth while to appropriate land to it alone; if it is not an object, trees should not be permitted to occupy the land to the detriment of other crops.

NABOURS PEAR.*

We have thus far been unable to find out where or when this pear originated, with any degree of certainty; it seems to have come from South Carolina into this section of the country, and is pretty extensively disseminated over the State of Georgia. Size from medium to large; form elongated turbinate; stem from one and a half to two inches in length; basin shallow; calyx of medium size; color greenish yellow, thickly covered with grey russet specks and tracery; flavor buttery, juicy, and sweet; flesh white. Ripens during September. Quality nearly best. Tree a vigorous grower on either pear or quince stock; shoots stout and greyish purple in color; leaves very large, coarse, and nearly round; in appearance, the tree resembles the Rostiezer very much. J. Van Buren.

* See Frontispiece.

THE ORCHARD HOUSE, OR THE CULTIVATION OF FRUIT TREES IN POTS UNDER GLASS.

BY THOMAS RIVERS, OF THE NURSERIES, SAWBRIDGEWORTH, HERTS.

Concluded from page 311.

THE HEDGE ORCHARD HOUSE.

Some thirty years since, I planted numerous beech hedges for shelter; these stand with their ends S. E. and N. W. A few years ago their S. W. sides looked such compact green walls, 8 feet high, that I was tempted to rear against them four lean-to houses, each 40 feet long and 12 feet wide, 8 feet high at back, and 3 feet high at front, with a sunken path in the centre. The climate in these houses in the summer months is most delightful. Tea-scented roses, magnolias, and other shrubs liable to injury from our severe winters, thrive admirably, owing to the dryness of the soil and air. Apricots and peaches ripen about three weeks or a month later than those on walls; but, owing to the quantity of cold air admitted through the back hedge in spring, their blossoms often suffer in April, if frosts are severe. I found this to be the case in 1854 and 1855; this induced me to build some small span-roofed houses, 12 and 14 feet wide, 4 feet high at the sides, and, instead of using boards, to plant them with hedges to form the walls,—one with yew, the other with Siberian Arbor Vitæ. These are clipped twice in the growing season; they now form compact hedges, and seem to flourish all the better for the drip from the glass which pours into them when it rains heavily. I mention these span-roofed hedge houses, not only because their climate in spring, summer, and autumn, is most charming, and perfect as a promenade for persons in delicate health, but for their convenience in retarding fruits. The trees bloom ten or twelve days later than those in the regular orchard house, and generally escape injury from spring frosts; there is such a constant percolation of air through the hedges when the sun shines, that the healthy growth is surprising. If Royal George and Noblesse peaches are to be retarded, they may be removed from the boarded orchard house to the span-roofed hedge house from the first week in June till August; they will ripen about three weeks later than those left in it. Apricots, plums, and pears ripen well in these houses, and are always perfect in flavor; cherries are liable to be eaten by birds which creep through the hedges. The great charm of them is, their perfect ventilation without any trouble. For many kinds of greenhouse plants they will be found the best of summer quarters; the increased temperature in sunny weather, from 15° to 20° above the open air, and the absence of heavy storms, which so often injure exotics when placed out of doors in summer, are most advantageous to their well doing.

THE TROPICAL ORCHARD HOUSE.

An orchard house for tropical fruits has long been with me a favorite idea, and recently, from my having had a daughter return from a nearly two years' residence in the West Indies, it has received a fresh stimulus. The variety of tropical fruits seems almost endless; some of them, if I may judge from description, are too rich, others too insipid for English palates, and of the greater part the trees that bear them would require a house far beyond

the means of the amateur not blessed with a large fortune. I will, therefore, for the present, confine myself to a tropical orchard house for fruit trees of moderate growth, not extravagant in its dimensions, and yet capable of giving many luxuries. The small span-roofed house, with some little modification, (described in pp. 257, 258,) seems best adapted for this purpose: its sides should be five feet in height, three feet of which should be 9-inch brickwork, and two feet (the upper part) of glass, with sashes two feet long, on pivots or hinges, at intervals of five feet for ventilation in hot weather; it should be glazed with double crown glass, which is very clear, and rarely gives occasion to scorching. Its height should be ten feet, the path two and a half feet wide, and the borders on each side four and a half feet wide, raised with brickwork to sixteen inches in height. In the centre of each border two 4-inch hot-water pipes should be laid, and then a flooring of slates laid across from wall to wall of each bed, so as to leave a space for a hot-air chamber; six inches of the brickwork must be carried up above the slates so as to form a hollow bed with 6-inch edgings to support the mould, which must rest on the slates to form the perpetual hotbed, on which the pots are to stand. The compost for this border should be two parts turfy sandy loam, lumpy as possible, one part rotten dung, and one part bricks broken into small pieces from the size of a nut to that of a walnut, with their dust; these should be mixed with the above, to keep it open and favorable for drainage, and a border of mould made with it on the slates, four or five inches in depth. A perpetual hotbed is thus formed.

So far this is a safe and necessary step; but the hot-bed will not heat the air of the house sufficiently in the damp and chilly days of winter. This must be done by two 4-inch hot-water pipes carried round both sides of the house, next to the walls, just above the surface of the borders. The atmosphere of a house thus heated should range, in spring, summer, and autumn, from seventy to ninety degrees (the latter only in sunny weather), and from sixty to seventy in winter, *i. e.*, from the end of November till the middle of February.

It is well known that orange trees, cultivated in the usual way in France or England, never give fruit at all eatable, solely from their lack of heat at their ripening period late in autumn and winter. In Grenada (West Indies) they commence to ripen towards the end of October in a temperature varying from 70° to 80° or thereabouts; their flavor there, freshly gathered from the trees, is so delicious that they are far superior to those we receive from St. Michael's and other places, all of which are gathered before they are ripe. In our tropical orchard house oranges would ripen about Christmas. How agreeable to be able to gather a portion of the Christmas dessert from one's own trees!

The orange will, I have no doubt, form a distinguished feature in this mode of fruit culture. I will, therefore, commence with directions for its cultivation. As an ornamental tree in the greenhouse and conservatory, it is an old friend; and perhaps no tree in the known world has suffered, and does suffer, such vicissitudes, yet living and seeming to thrive under them. It *glories* in a tropical climate, and yet *lives* and *grows* after being poked into those cellar-like vaults used for its winter quarters on the Continent; it gives flowers in abundance under such treatment, and would even give its fruit—albeit uneatable—if permitted. Nearly the same kind of cultivation has been followed for many, many years in England: it has rarely had

heat sufficient to keep the tree in full vigor, and its roots in pots or tubs must have suffered severely from having been placed out of doors in summer on our cool damp soil, and in winter on a stone floor still more cold. If roots could make their complaints audible, what moanings should we hear in our orangeries all the winter!

In cultivating the orange for its fruit, the first consideration is to procure some of the most desirable varieties; such as the delicious thin and smooth-rinded oranges which we receive from St. Michael's; the Maltese blood-orange, and the Mandarin: with the present facilities of transport, young trees of these could be procured. The latter, called also the Tangerin orange, deserves especial notice, as it proves to be the hardiest, as well as the most excellent in flavor, of any yet introduced. It will do well in a common greenhouse; and, when placed out of doors in June, it ripens its fruit of fine flavor in September; which remain good on the tree for six months. This delicious little orange is only eaten in perfection when fresh from the tree. In Lisbon it is sent to dessert in clusters with leaves attached to them: unless these are quite fresh and green when the fruit is served, it is not reckoned in full flavor. If grown in the tropical orchard house, the trees should be placed in the coolest part of it, and have abundance of air in mild weather in winter; they will then bloom later, and set their fruit with greater certainty. They should be placed out of doors in June (so that the fruit ripens slowly), and replaced in the house in September.

There are also some sweet oranges cultivated in France, of which trees could be readily introduced; but the first-named varieties seem to me most worthy of the careful cultivation to be given them in the tropical orchard house. The first matter of import is the soil best adapted for the orange; there are many receipts given in our gardening books, but the most simple compost of all, and one that cannot fail, is the following: two parts sandy loam, from the surface of some pasture or heathy common, chopped up with its turf, and used with its lumps of turf about the size of large walnuts, and its fine mould, the result of chopping, all mixed together; one part rotten manure at least a year old, and one part leaf mould; to a bushel of this compost add a quarter of a peck of silver, or any course siliceous sand—calcareous sand and road sand are injurious—and the mixture will do for all the fruit trees of the tropical orchard house, as well as for oranges. In potting the orange it is better to commence with a pot too small rather than too large; for, unlike the peach or the plum, it does not feed rapidly and at once fill the pot with roots. Thus a tree two or three years old, may be potted into a 9-inch pot, suffered to remain for one year, and then removed to a 13-inch pot, perforated as for other orchard-house trees, in which it may remain (unless the house is very large, and a large tree is wished for) six, seven, or ten years: a portion of the surface soil should be annually removed early in February, as directed for other orchard-house trees, but not deeper than from three to four inches, and the pots filled up with the above compost; and about the beginning of March a surface-dressing of manure should be given. I have observed that the French cultivators strew fresh sheep's manure on the surface; they also place their trees in a pure peat earth. I have not seen this mode of culture in England, but it may be tried where peat is abundant. Two other surface-dressings of manure should be given, one in June, the other the beginning of September. The trees will of course be placed on the hotbed, or plunged slightly two or three inches into the mould.

I am not, however, an advocate for plunging to any extent, unless very rapid growth is required, for I find that trees in pots standing *on* a bed of heated mould and rooting into it, make a healthier, although a slower growth. As soon as the fruit is gathered, which ought to be by the beginning of February, when foreign oranges commence to be good, the trees should be lifted and root-pruned, as directed for peaches, and top-dressed.

Orange trees should have a portion of the house to themselves, divided by a light glass partition, as they require and will bear more ventilation than other tropical fruit-bearing trees. Thus a portion of the small span-roofed house should be appropriated to them, so that they are placed on both borders, the other part of the house being occupied with mixed trees and shrubs. Air can then be given to them by opening the sashes on one or both sides, without interfering with trees and shrubs requiring less ventilation.

Orange trees when grown constantly under glass are liable to a black fungus on the upper surface of the leaves; this can only be removed with a sponge and warm water; they should be syringed with soft tepid water twice a day (at 9 A.M. and 5 P.M.) during the summer, and once a day in the morning in sunny weather, in early spring and autumn; while the fruit is ripening in the winter, syringing should be discontinued. It is the custom to cultivate orange trees in square boxes made of oak. I am inclined, however, to recommend pots perforated at bottom, as usual with other pots used for orchard-house trees; the slate pots made by Mr. Beck, of Isleworth, are very neat and even ornamental; with the usual five or seven perforations, they would doubtless answer very well. If wooden boxes are used they should have bars at the bottom to allow the roots to make their way into the hotbed.

(Mr. Rivers here devotes a few pages to the cultivation of the Mangosteen, the Chirimoya, the Pomegranate, the Lee Chee, the Loquat, the Guava, the Granadilla, Mango, Dwarf Plaintain, Rose Apple, Sweet Lime, and the Sapodilla, all which we believe, may be successfully fruited. Those intending to cultivate these will have reference to the book itself.—ED. HORT.)

The Fig. This may be made a most desirable tropical orchard-house tree, and so managed as to give its quota to the Christmas dessert. Trees of one or two years old, that have been protected from the winter, in a cold pit, should be potted early in May into 13-inch pots, and protected from frost by being placed in the orchard house, or any cold frame or pit, till the first week in June. They may then be placed out of door for the summer in a sunny exposure, sheltered from boisterous winds. Liquid manure may be given to them once a week, and they should be lifted once a fortnight, to prevent the roots which would make their way through the bottom of the pot from becoming too large. They may remain in their summer quarters till the end of September; but if one or two frosts occur in that month, they should be protected by having a piece of calico or a little hay thrown over them. At the end of the month they will be covered with young green figs, and if removed to the tropical orchard house they will ripen their fruit towards the end of November and through December. If it is wished to retard the ripening of the fruit on some of the trees, they may be placed in the common orchard house or a cold-pit till the first week in November. They will then, on being removed to the tropical orchard house, mature their fruit even as late as January. The most prolific and best varieties for winter figs are the White Ischia, (this is sometimes called incorrectly the Nerii: it is a most abundant bearer,) the Brown Turkey, or, as it is often called, Lee's Perpetual, and the White Marseilles.

I have in these few pages given the outline of what may be done towards increasing our garden luxuries. The culture of tropical fruits is not a new idea; but I have endeavored to give a new version of an old idea. There is now no occasion for the bark-bed, in which it was once thought necessary to plunge the pots containing the plants of all tropical fruits. A perpetual hotbed, on which to place the trees—which may or may not be a new invention—is now easily formed by hot-water pipes: and I well know, and again say, that a tree standing *on* a hotbed will make a healthier although slower growth than one that is plunged *into* a bark-bed. Moreover, the latter is always disagreeable from its requiring to be turned and renewed, as well as from its unpleasant smell.

It will be seen that I have confined myself to the description of a comparatively small tropical orchard house; this I have done that I might be consistent. Large gardens have, for the most part, great gardeners who know how to build houses, if the means are provided, much better than I can tell them; but when the system of culture is understood, I can see no reason why the large span-roofed houses described should not be built in gardens of moderate size. The great object is to have abundance of heat at command; the central border, therefore, in a large span-roofed house would require four 4-inch hot-water pipes, each side border two; and to heat the air would require four 4-inch hot-water pipes round the sides. In such a house the trees might be suffered to grow to a goodly size and give a great abundance of tropical fruits from the delicious little Lee-chee to the exquisite freshly gathered Maltese orange.

I have been content with the enumeration and description of only a few tropical fruits; when their culture is better understood the list may be extended; for in all tropical climates there are numerous fruit-bearing trees and bushes utterly unknown to English gardens. It may perhaps be said that some of the kinds of fruit I have recommended, will form trees too large for a house of the dimensions given: this ought not to influence the cultivator; for, as is well known, the fig grows into a very large tree when the soil and climate are favourable, and yet bears well in a pot of moderate size. Collectors have for many years past paid much more attention to Orchids and Pines than to tropical fruits, only because their culture has not been carried on in England with spirit. Let us hope that, owing to the introduction of hot water as a means of heating, the low price of glass and bricks, and the low price of timber, we shall see tropical orchard houses rising up and rivalling the now numerous orchard houses in their agreeable results.

INSECTS AND HOW TO DESTROY THEM.

The numerous species of aphides under the name of "blight" are, as is well known, most troublesome enemies to all fruit trees in the open air: one regrets that orchard-house trees are not exempt from their visitations. Each species of fruit tree seems to have its peculiar aphis. There are, however, two which attack the peach and nectarine; the brown aphis, which often makes its appearance on the young shoots and buds in November and December, and the green, which generally attacks the trees as soon as the fruit is set on the young leaves unfolded. These are easily destroyed by tobacco-water, made by infusing two ounces of tobacco in a quart of boiling water, and applying it when cool with a middle-sized painter's brush in the following manner:—With the left hand place a piece of slate or glass

against the shoot, so that it rests against it, and then dip the brush in the water and brush upwards: if the first application does not kill them, it must be repeated.

This will destroy all the tribe, even the hard-to-be-killed blue aphis, peculiar to the plum, and the black which so often infests the cherry.

Another mode of destroying them is by fumigation, which is the most eligible when a large number of trees are infested. This is best done in the evening, and most economically with tobacco. The next morning the trees should be syringed with all the force possible, by applying the syringe close to each. Another mode of fumigation (and this is convenient when only a tree or two are infested) is, to envelope the tree in tiffany or thin calico, and then place under it a small pot of ignited tobacco paper. In all cases the dead and dying insects should be washed off with the syringe. "Sigma's Aphis Powder," sold by Mr. Powell, Ticehurst, Sussex, is also a convenient and efficient aphis destroyer: this is best applied, by a dredging box with a muslin cover, to the under surface of the leaves; it should be suffered to rest upon the leaves for eight or ten hours, and then be washed off with the syringe.

In the orchard-house culture of peaches and nectarines, syringing must play an important part; for the red spider is so fond of their leaves, that, like Sindbad's Old Man of the Sea, he will stick closely, and cannot be dislodged without applying the syringe close to the under surface of the leaves. If this pest be suffered to make the least progress, the flavour of the fruit will be entirely destroyed. A small pocket lens, in the hand of the amateur, will be the best instrument to discern it; looking closely at the under surface of the leaves, if it be there, a small bright-red speck, like a red grain of sand, will be seen. The experienced gardener does not look for them. One glance at the upper surface of those leaves, which show some minute yellowish specks, is quite enough for him. If, therefore, the least sign be apparent, continue the regular syringing, even till the fruit is ripe; otherwise, syringing may be discontinued, when the peaches and nectarines commence to soften, preparatory to ripening.

A very excellent mode of using sulphur has just been given in the "Gardener's Chronicle," No. 1, p. 5, by Mr. Gardener, of Rossall Hall, Fleetwood. "The house being shut up quite close in the evening, some large flower pots (say 13-inch pots) were half filled with fresh unslaked lime: this was sprinkled with water, and a handful of sulphur strewed over it, and suffered to remain all night. The next morning the house was syringed till quite saturated." This will not only destroy the red spider, but also the mildew on vines, and is, in my opinion, one of the best remedies ever discovered. As prevention is better than cure, I advise all lovers of orchard houses and vineries to apply it once a week through June and July. I am inclined to think that this simple remedy will do away with the necessity of the constant syringing I have recommended; and if so, the fruit will be improved in flavour. It is at any rate quite worthy of a trial.

MONTHLY CALENDAR FOR THE MANAGEMENT OF THE ORCHARD HOUSE THROUGHOUT THE YEAR.

January.—Observe the same rules for protection against frost, and give water, if necessary, as directed for December. In bright sunny weather the

the ventilators may be opened, to lower the temperature and prevent the blossom-buds from swelling prematurely.

February.—Continue the same rules for ventilation and protection as directed for January: towards the end remove the trees to their summer stations, making one for each tree as directed in page 265.

March.—Early in the month all the trees should be pruned according to the directions given under each kind of fruit. Watering may now be extended, unless the frost is very severe, giving a quart to each tree, and gradually saturating the earth.

If the weather be sunny, with sharp frosty nights, the shutters, both back and front, may be open from 9 A. M. to 4 P. M., and closed at night. If the weather be cloudy with frost, the shutters should be closed night and day. Apricots will sometimes bloom in the middle of this month, before the other trees. If the frosts are severe at night, it will be well to throw a piece of tiffany over such as are in bloom, removing it in the morning; this is so light that the blossoms will not be injured.

April.—Observe the same regulations as in March, as to ventilation. In the beginning of the month the trees will in most seasons be in full bloom. If severe frosts come on, which is sometimes the case, and the thermometer in the open air descends to 24° in the evening, a fire, consisting of 6 or 8 quarts of charcoal, should be placed in an iron pan in the centre of the house: for a house 30 feet long one pan will do; for one 100 feet long, three pans will be required. Whenever charcoal is burnt, the ventilators over the door or doors in span-roofed houses should be left open, and a portion of the top ventilators in lean-to houses.

Towards the end of the month, when the fruit is set and commences to swell, syringe the trees morning and evening with soft water, or spring water that has been exposed to the air for a few hours. Place the syringe close to the under surface of the leaves. If the weather be dry and warm, the trees, if the earth is dry, may be watered in the evening, giving to each from 1 to 2 quarts of water. The aphides will now begin to make their appearance. Their destruction must be seen to, as directed in pp. 354, 355.

May.—Observe the same regulations as to watering and syringing the leaves, as in April. Ventilation must now be strictly attended to: in all descriptions of weather the ventilators must be open by day from 8 A. M. to 6 P. M.; but, if the situation of the house is exposed, so that the N. E. wind can blow through it, it will be as well not to open the ventilators that will admit that or the east wind when it blows fiercely. Worsted netting, with meshes just large enough to admit the point of the finger, is a most excellent material to place over the ventilating openings inside, to remain all the summer. It softens the violence of a brisk gale, and yet admits plenty of air. It will be found most useful near large smoky towns, for the fibres of the worsted meet in the meshes and keep out sooty particles; insects also never attempt to enter. A clever orchard-house cultivator, living at Bow, near London, has found this worsted netting of great value, for his orchard-house trees are as green and as fresh in summer as if they were in the country, instead of being in the midst of smoke. Aphides will now be very active, and must be destroyed. Apricots will also be infested with a caterpillar in their young shoots; the ends of them must be pinched, so as to crush it.

June.—Syringing at 7 A. M. and 6 P. M. must now be strictly attended to;

and, if the weather be hot and dry, the trees will require watering abundantly every evening. My trees in 13-inch pots and seven years old take one gallon each. All the ventilators should be open from 8 A. M. till 6 P. M. Some fresh top-dressing of the usual compost may now be added, if the surface of the earth in the pots has become hard and close.

Commence to thin the fruit and pinch in the laterals, as directed in page 268, particularly of the figs.

The red spider now requires particular attention, and the pocket lens must be brought into use. If syringing fails to completely extirpate it, lime and sulphur, as in p. 355, must be resorted to. Remove plum-trees to the open air, to ripen their fruit, if there is a scarcity of room in the house ; also apricot trees (see pp. 266, 300.)

July.—Thorough ventilation must be attended to—it is a good practice to fasten back and front shutters, so that they cannot be closed. Syringing and watering as in June. If any of the trees are growing grossly and too rapidly (particularly figs) gently tilt up the pot on one side, and cut off all the roots on that side that are making their way into the soil, and a week after do the same with the other side. Renew the top-dressing, if the surface has become firm from repeated watering. Frequent top-dressings in summer are better than manure water. Pinch in lateral shoots to within two buds of their bases, to prevent the tree being crowded with shoots and leaves (see p. 268). The compressed earth in the pots gives vigor almost beyond belief.

Remove pear-trees to the open air to ripen their fruit ; also peach and nectarine trees (see pp. 270, 305).

August.—Ventilation and watering the same as in July ; syringing till the fruit begins to color, or, if the house can be kept perfectly free from the red spider by lime and sulphur, discontinue it from the last week in July. Still pinch in laterals, and, at the end, pinch off the points of all the leading shoots, except figs; these will not require any further pinching.

Remove peaches, nectarines and apricots to the hedge orchard house, or to the open air, to retard their ripening, if required.

September.—Ventilation as in August, unless the weather be peculiarly windy and stormy. In such weather the house may be closed: watering must be continued, but no syringing. Pinch in laterals, if they still persist in growing.

October.—Ventilation and watering as in September. About the middle of the month every tree—except late peaches with their fruit still on them—should be lifted, and all its roots cut off close to the bottom of the pot ; and about the 24th, top-dressing must be done (this is described in p. 264), and a gallon of water given to each tree. They may now be placed close together, so as to give room for other plants, particularly Chrysanthemums, which bloom well in the orchard house all the autumn. Prune vines in pots (see p. 306).

November.—Ventilation the same as in October. On the 5th give each tree a gallon of water, the last for the year. The autumnal top-dressing and watering encourage the emission of young roots, so that the tree is prepared for its fruit-bearing work early in spring. If the brown aphis makes its appearance on the young shoots and buds, use the brush and tobacco-water, as directed in pp. 354, 355.

December.—The house may now be shut up day and night. A registering

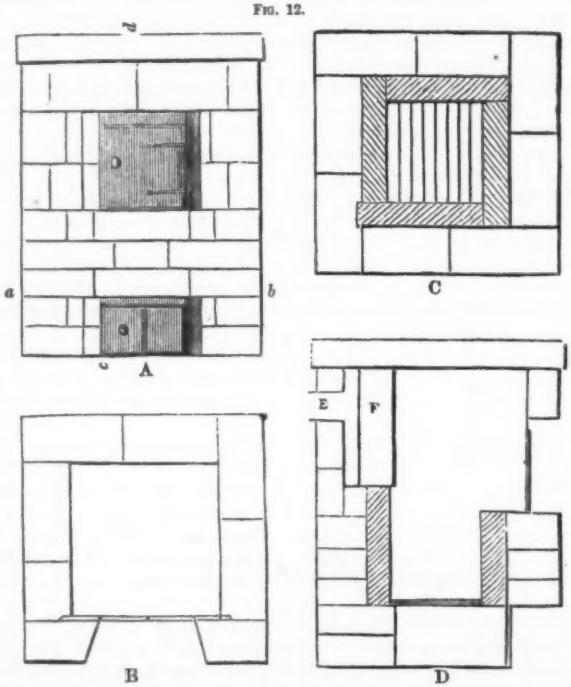
thermometer should be kept inside; if at any time this denotes a night temperature of 20°, some dry hay or litter should be placed among and on the pots, to six inches above the surface; this will keep their roots from injury by frost.

If the weather be windy, dry and mild, observe if the trees are inclined to shrivel from being too dry; if so, give each a quart of water at 10 A. M.; otherwise, no water all this month. If they shrivel from severe frost, it will not matter, for as soon as a thaw comes they will recover. Pay attention to the brown peach aphis.

Conclusion.—I appear in the foregoing pages to have employed a great number of words in the endeavor to make plain this simple, agreeable and novel mode of cultivating fruit trees. Judging from my own feelings, its advantages and pleasures are manifold. Each bud, leaf and blossom is brought close under the eye of the cultivator. All the minute and beautiful

THE BRICK ARNOTT'S STOVE.

Fig. 12.



A, front elevation; B, ground plan; C, horizontal section through a b in A, showing the fire-bars or grating; D, vertical section through c d in A, showing the front and back fire-lumps, the former reduced to nine inches in depth; E, iron pipe leading to the chimney: F, fire-lump, placed an inch and a half from the mouth of the pipe leading to the chimney, and about the same distance from each end: this causes the smoke to pass round, thus preventing a too rapid consumption of the fuel. The courses of bricks in height are laid flat.

operations of nature can be closely watched in a genial climate. The silvery covering of the peach blossom-bud,—the beauty of its fully developed flowers (how fresh and happy they always look!)—the anthers shedding their pollen,—the germs gently swelling,—the downy, ruddy, luscious-looking coat of its charming fruit, are all calculated to give pleasure to the healthful, cheerful mind; for the varied works of Nature's laboratory are brought near to the eye, near to the mind, near to the heart, which is instinctively lifted in thankfulness to the Giver of all such good and beautiful things.

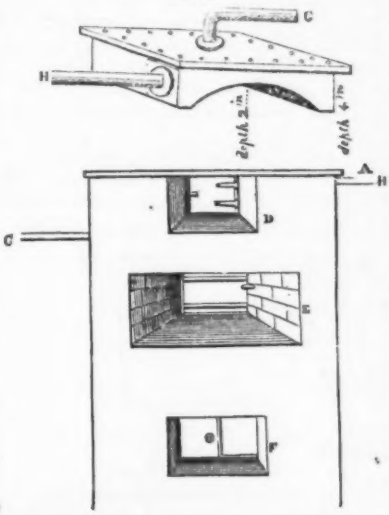
The above figures, the blocks of which have been kindly lent me by the editor, appeared in the "Gardener's Chronicle" for January 24th, 1846, and a description of them was given in the same paper for January 17th in the same year (p. 266).

I had then four in operation; I have now twelve; and have never yet seen any mode of heating small or moderate-sized houses so efficient.

For a house twenty to thirty feet long by twelve, a stove two feet four inches square, outside measure, and three feet ten inches high, and the fire-box eight inches over and eight inches deep, will be amply sufficient. For a house forty feet long by twelve, one of two feet ten inches in diameter and three feet ten inches high, the fire-box ten inches over and ten inches deep, will also answer well. The stove should be placed in the centre of the house, within a foot or eighteen inches of the back wall, and the horizontal pipe* go at once into a chimney outside, or, what is better, the chimney may be built inside, and carried out of the back wall, just under the glass. By this method no heat is lost. If it be thought necessary to have the feeding-door and draught-door outside, the draught-pipe must be reversed. I, however, prefer the doors inside, for the cold damp air of the house, floating near the ground floor, is sucked in and heated. No inconvenience is experienced from dust, as every morning, before the stove is cleaned out, a pint or so of water is poured in at the feeding-door, so as to saturate the ashes before they are drawn out. Coke from the gas-works is the only proper fuel to use. These stoves should be built with 4-inch brickwork and mortar, the fire-boxes with fire-bricks and fire-clay; and they should not be

THE ARNOTT'S STOVE BOILER.

FIG. 13.



A, iron plate; B, flow-pipe; C, return-pipe; D, door over the boiler: E, feeding-door; G, flow-pipe; H, return-pipe.†

* These stoves will not burn well with a long horizontal draught or flue: three feet must be the extreme length.

† The flow and return-pipes were originally 2-inch; they are now made 3 and 4-inch, and are found to do better.

used till two or three weeks after building, or the brick-work is apt to crack. I find nothing like iron for the roof or top of the stove, as Welsh tiles are apt to crack. A plate of cast-iron, nearly three-quarters of an inch thick, is necessary. On this a shallow pan, two inches deep, two feet square, of galvanized iron, filled with water, will always keep up a genial moisture in the house.

[We have given entire this description of Arnott's Stove, but the usual modes employed in America will prove equally efficacious.—Ed. Hort.]

The above, figured in the "Gardener's Chronicle" for May 12th, 1849, the blocks of which have been kindly lent to me by the editor, is perhaps the most economical and efficient hot-water apparatus ever introduced; it is merely a boiler placed over the fire-box of an Arnott's stove, which does its duty most admirably, at a less cost for fitting up and fuel than any boiler I have yet seen in operation.

I have now six in full work. They have been hitherto cast of three sizes —14-inch, 16-inch, and 18-inch. One of fourteen inches (fourteen inches square), which holds just eight quarts of water, is now heating an orchard house forty feet by twelve,—it does this well, at a very small cost for fuel—coke; another 16-inch boiler heats two propagating pits with gutters, each sixty feet long by six feet, also most efficiently; another heats also a propagating pit sixty feet long by six feet. These two last-mentioned boilers have superseded two of those ribbed monstrosities which cost four times the amount to "set," and devoured four times the quantity of fuel required by the above very simple form of boiler. When used for heating houses, the feeding and draught-doors may be outside, although I do not adopt this plan: but the stove should be, if possible, inside, as the dry gentle heat of the stove, with the moist heat from tanks or gutters, forms a perfect combination. These boilers are made by Mr. Hughes, the Iron Foundry, Bishop's Stortford, at a charge of from 30*s.* to 35*s.* each. A good self-taught engineer is William Vale, of Sawbridgeworth: he has had some experience in building Arnott stoves and fitting boilers to them in small forcing orchard houses.

A SELECT LIST OF FRUITS ADAPTED FOR ORCHARD-HOUSE CULTURE;

Placed in the order of their ripening. The sorts marked thus,* may be selected by those requiring only a few trees.

Apricots.

Red Masculine.
Musch Musch.
Large Early.
*St. Ambroise.
*Kaisha.
Blenheim.
*Royal.
*Peach.

Peaches.

*Red Nutmeg.
Early Anne.
*Early York.
Acton Scott.
*Early Grosse Mignonne.
*Précoce de Savoie.
Pêche Abec.
Grosse Mignonne.
*Noblesse.
*Royal George.
Reine des Vergers.
Barrington.
Chancellor.
*Walburton Admirable.
Late Admirable.
*Bourdine.
Desse Tardive.

Dessert Plums.

*Early Favorite.
Early Prolific.
St. Etienne.
*De Montfort.
Denniston's Superb.
*Mamelonnée.
*Green Gage.
*Jefferson.
*Purple Gage.
Woolston Black Gage.
*Reine Claude de Bavay.
Guthrie's Late Green.
*Coe's Golden Drop.
Ickworth Impératrice.
St. Martin's Quetsche.
Coe's Late Red.
*Late Black Orleans.

Kitchen Plums.

*Early Orleans.
*Kirke's.
*Victoria.
*Prince Englebert.
Pond's Seedling.
White Magnum Bonum.
Diamond.
*Autumn Compote.
*Belle de Septembre.

Cherries.

*Belle d'Orléans.
Early Purple Guigne.
*Knight's Early Black.
*May Duke.
*Archduke.
Royal Duke.
Belle de Choisy.
Black Eagle.
*Elton.
Bigarreau Napoléon.
Bigarreau.
*Reine Hortense.
*Florence.
*Coe's Late Carnation.
*Late Duke.
Belle Magnifique.
Morello.

Figs.

Early Violet.
White Marseilles.
Brown Turkey.
White Ischia (for forcing).

Pears.

*Doyenné d'Eté.
Citron des Carmes.
*Jargonelle.
Pius the Ninth.
Seckle.
*Colmar d'Eté.
*Louise Bonne.
Gansel's Bergamot.
*Beurré Superfin.
Beurré Rouge.
Crassane.
Doyenné Gris.
*Marie Louise.
*Thompson's.
Beurré Clairgeau.
Van Mons (Léon le Clerc.)
*Glou Morceau.
Beurré d'Aremberg.
Passe Colmar.
*Winter Nelis.
Easter Beurré.
Beurré de Rance.
*Josephine de Malines.
*Bergamotte d'Esperen.
*Prince Albert.

Grapes (for the Common Orchard House).

*Early Malingre.
*Prolific Sweetwater.
Grove End Sweetwater.
*Muscat St. Laurent.
Royal Muscadine.
*White Romain.
Purple Fontainbleau.
*Esperione.
*Black Hamburgh.
Chaptal.
Cambridge Botanic Garden.
*Muscat de Sarbelle.

Grapes (for the Forcing Orchard House).

Chasselas Musquée.
*Purple Constantia.
*White Frontignan.
*Muscat of Alexandria.

Apples.

Calville Blanche.
Newtown Pippin.
Northern Spy.
Reinette de Canada.
Melon Apple.

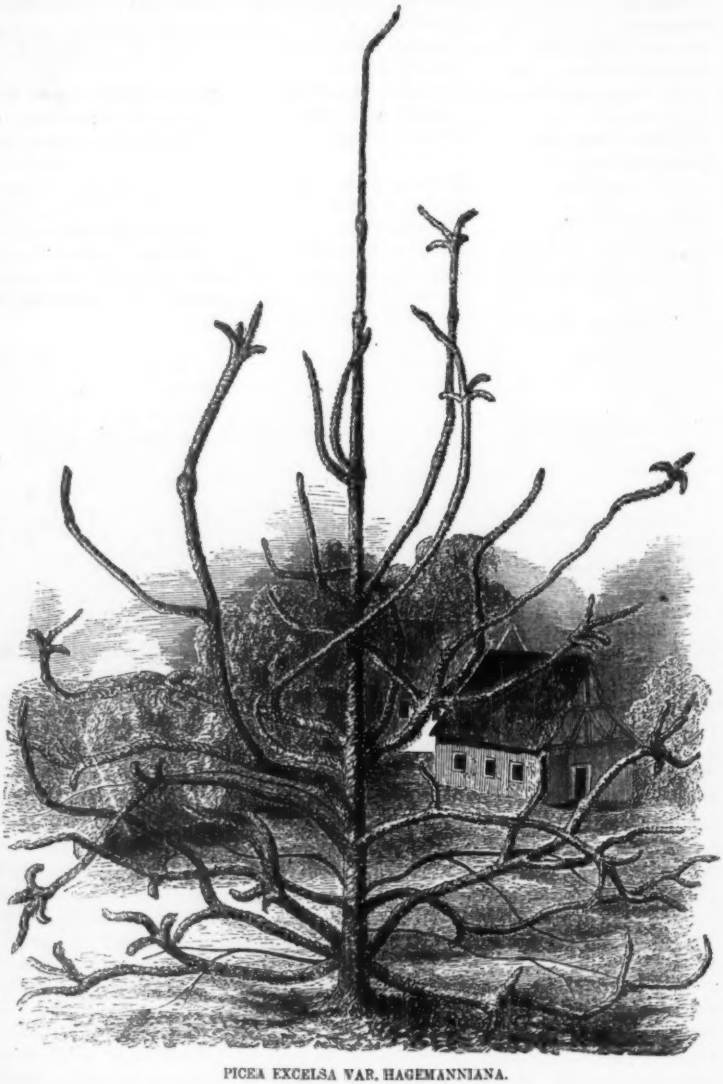
Apples for the North.

*White Juneating.
*Irish Peach Apple.
*Cox's Orange Pippin.
*Ribstone Pippin.
*Golden Pippin.
Golden Reinette.
*Van Mons Reinette.
Coe's Golden Drop.
*Sturmer Pippin.

Strawberries.

*Keen's Seedling.
*Seedling Eliza.
Sir Harry.
*Carolina Superba.
Ingram's Prince of Wales.
*British Queen.

THE END.



PICEA EXCELSA VAR. HAGEMANNIANA.

PICEA EXCELSA VAR. HAGEMANNIANA.

This variety of P. excelsa, which is quite unique in its appearance, and which by its singular habit can only be somewhat related to Picea excelsa var. viminalis, was discovered in the summer of 1856, in an extensive forest, where it came up from seed accidentally.

Its very singular, nearly branchless limbs, have some similarity to Araucaria imbricata. It was named after Mr. Hageman, under whose care this forest is; and I planted it in my nursery, where I succeeded in propagating it extensively.

The same day and in the same forest, I was fortunate enough to discover another variety of Picea excelsa, not less interesting but of a far different character, and which will no doubt prove a great acquisition to our evergreen trees, as it has the mild, soft character of a weeping tree. I named this variety Picea excelsa, or Hartweggii; it has a graceful appearance, having distinct layers hanging down semi-globularly.—*E. Topf, Erfurt; in Deutsches Magazin, Stuttgard.*

FROSTS AND FRUITS.—THE FRANKLIN GRAPE, &C.

BY A. HUIDEKOPER, MEADVILLE, PENN.

Up to the opening of the present month, (June,) Western Pennsylvania presented a scene of almost unrivalled luxuriance and beauty. The few cold days in January, which proved so injurious to many of the Arbor Vitæ and Norway Spruce trees in New England, had passed over this region without leaving any mark whatever. Trees and shrubbery of all kinds had never hybernated with more perfect freedom from injury. Never have we had a greater profusion of blossoms, a better show of fruit, or a more encouraging prospect of superabundant crops in all the departments of agricultural economy;—even dwarf pear-trees made a fair attempt to retrieve their sullied reputation, and the pomologist looked forward to a kind of horticultural millennium, when he should be permitted to test his new varieties of fruit and draw a comparison of their merits. But the fatal night of the 4th arrived, and a thousand golden anticipations were in a few short hours

"Nipp'd by an untimely frost."

As the sun obtained power on the morning of the 5th, the whole air became fragrant with the sweetness of the wilting vegetation. In abject humility for having been so stiff-necked the night before, the ascetic dock hung its head meekly to the ground; the elders and ferns bewailed their former verdancy in sackcloth and ashes, while the hickories donned a sable mantle of velvet and went into mourning for the loss of their cousins, the butternuts. The ash-trees for once were true to their cinereous appellation, while the Tulip Poplars, which botanists have poetically styled the Liriodendron, showed no resemblance whatever to a lyre, unless it was perchance a blasted one. The poor locusts died with an air of catholic sanctity, holding bouquets of white flowers in their hands, while the maples endeavored to

braze it out, and treat the matter as a bagatelle; their coppery tints, however, showed that it was at best but a bogus assumption of indifference.

The dark cloud which rested upon the landscape, found a sympathetic shade on many a human countenance. The farmer made a wry face over his shrivelled fields of wheat; the pomologist found a melancholy amusement in popping his hollow peaches, which exploded with the slightest compression, while the florist exclaimed with Scotia's bard,

"But our flowers were in flushing
When their blighting was nearest."

After a week of despondency, and minor frosts at intervals, we have now a most healthy and cheering reäction,—copious warm showers have greatly revived the drooping vegetation. The farmer has repaired damages so far as labor could accomplish it; wheat fields supposed to be fatally injured are beginning to blossom and show symptoms of returning vitality; while here and there an unscathed orchard has obtained a pleasant notoriety, like the green spots which show themselves amid the Alpine glaciers.

As the half-foundered vessel is sometimes righted up by cutting away the masts and the rigging, so many cultivators have put their pets into better condition by clipping off the wilted leaves and the softened branches preparatory to a renewal of their growth.

Consolation in the shape of flour at ten dollars a barrel, has been freely administered to the most panic-stricken, who are now happily convalescent, and altogether we have a host of agencies and energies at work to render the balance of the season anything but a barren or unfruitful one.

Amid the wreck in the gardens, the peas are blossoming afresh, the currants have partly escaped, and we enjoyed a larger and finer crop of strawberries than I have grown for years. The Hooker and Wilson's Albany, have fruited with me for the first time, and appear to be nearly equal in merit; the largest berries (about four inches in circumference) were on the first, but the others were nearly as large,—both kinds presenting very strong trusses of fruit. A seedling of Messrs. Ellwanger & Barry, probably the Orange Prolific, has also proven itself in every way satisfactory.

Grapes under glass with me this year are doing very nicely, with the prospect of a very heavy crop. One Hamburgh vine alone, presents 250 clusters of fruit. A self-registering thermometer in the grapery in which this vine stands, gave during the frosts the following results: night of June 4th, 29½; June 11th, 31½; June 12th, 33½. Nothwithstanding these low figures, nothing in the grapery, not in contact with the glass, appeared to be injured, except a few leaves of the White Frontignac. I have found this grape on four years' trial very tender, and a miserable bearer; according to the books it ought to be prolific. Has any one else a similar experience? I notice that the fruit upon the higher portions of all the vines is frequently quite in advance of that on the lower branches; the explanation of this is, I take it, the higher temperature of the upper atmosphere in the grapery; and this is also, I suppose, the solution of what in several manuals is spoken of as a natural tendency of the grape to send its sap to the higher branches. I have never discovered any want of force or strength in the lower branches, and have never had any difficulty in fruiting the vines clear to the border. If a vine on being taken up in the spring is slung in a pendant position, the head being lowest, is kept in the coolest atmosphere, and the lower branches get a good start, but are overtaken by

the top, when it is tied up, which brings the whole vine into uniformity. The upper grapes on some vines which I tied to the trellis this spring, without slinging them at all, had attained to the size of marrowfat peas by the time the lower clusters were out of bloom. The increased temperature above, also frequently shows its effects in the setting of the fruit—the clusters on a Sweetwater vine above, being almost impenetrable to the scissors, while below the fruit will set more irregularly and thinly.

I have growing to the south of my dwelling, a vine of the grape lately spoken of in the *Rural New Yorker*, and in the *Gardeners' Monthly*, as the Franklin. I have some doubts about its *Franklin* origin, and am inclined to believe that it was introduced here without a name from Mr. Adlum's garden, D. C., some thirty years ago.

The vine above referred to, was set out some sixteen years ago, and now measures ten inches in circumference, and covers above and below a porch extending itself for about seventy feet. It probably had half a ton of fruit upon it when injured by the late frost. I notice the dormant buds are already pushing, and it may possibly produce new clusters of fruit. I think this variety a valuable one for northern climates. It has stood, unsheltered, the test of our severest winters, and has never failed to ripen its fruit perfectly. The clusters are small and abundant; the fruit sets irregularly, some bunches being too compact, and others open and uneven. The color is black, with a blue bloom; the skin thin, too thin to enable it to bear much transportation or to keep long. The pulp is free from toughness, and the flavor, without any saccharine qualities, is sweet enough to be agreeable. The fruit stains a little on being eaten, but I have never known those who partake of it to show any other blueness than a temporary discoloration of the lips. It is a popular grape here, and for our northern latitudes is a very reliable one.* Mr. Hobbs, a nurseryman in this county, has produced a seedling from this grape, and exhibited to me last year a sample of the fruit. It resembled the parent vine very closely in its qualities, and the fruit was somewhat larger. If it proves superior on future trials when the vine has grown older, I will speak of it again.

RURAL GOTHIC COTTAGE.

BY G. E. HARVEY, RURAL ARCHITECT AND LANDSCAPE GARDENER, LYNN, MASS.

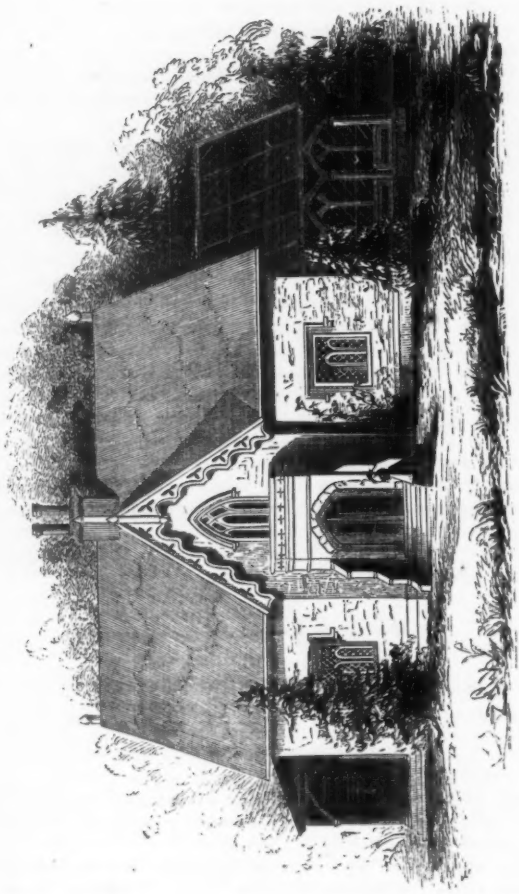
THE accompanying sketches represent a design and plan for a suburban cottage of the rural gothic style.

By glancing at the plan it will be readily seen that it is intended for the home of a gentleman of taste and refinement; whose love for flowers is shown in the addition of a pretty conservatory communicating directly with the parlor; and whose taste for literary pursuits leads him to the setting apart of a room especially adapted to the reception of books—the Library.

The following are the details of the plan-accommodation:

No. 1. Open Porch, 6 feet by 8½.

* I should like to have this grape compared with the Columbia and York Madeira, by some one who has them.



RURAL GOTHIC SUBURBAN COTTAGE.

No. 2. Hall, 13 feet by 18. Directly facing the entrance, glazed sliding doors open into the Library, No. 5, 13 feet by 15.

No. 3 is the Drawing-room, 14 feet by 19. Folding-doors lead from this room into the conservatory, No. 4, 14 feet by 17.

The flower shelves are arranged around the sides, while in the centre may be placed a fountain and basin, or a stand with an aquarium; either would have a very pretty effect seen through the Drawing-room arch.

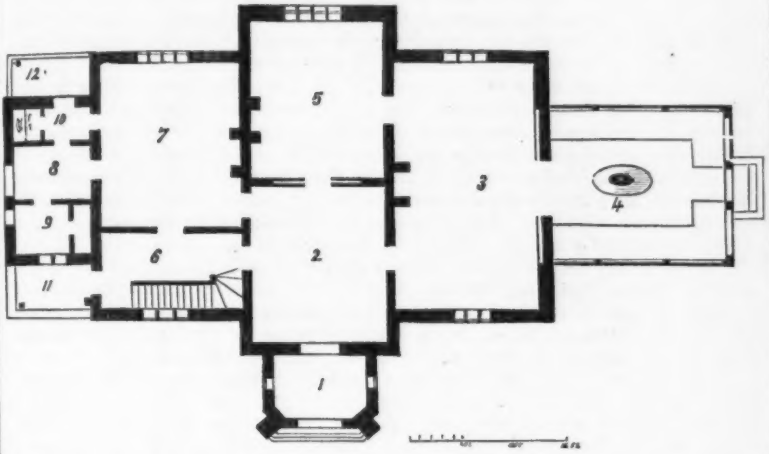
No. 6 is the Staircase Hall, containing stairs to the chambers and cellar; this communicates with the Porch, No. 11.

No. 7 is a Dining-room, 14 feet by 16, connecting with a Waiting-room, No. 8, which is furnished with a Dumb Waiter, rising from the kitchen.

No. 9 is Pantry, 5 feet by 6.

No. 10. Back entry for the private use of the family.

No. 12. Back Porch.



The second floor contains four good-sized chambers, each with a closet or a Dressing-room.

As the partitions are similar to those on the first floor, no separate plan is necessary.

Construction.—This cottage may be built of brick, or what is much better, of rough undressed blue stone, with the trimmings (that is the quoins, window and door latrels, &c.) of freestone, or of granite half-dressed; either will give a sufficient variety of color.

The verge-boards should be cut from two inch and a half plank, and, with the other ornamental details of wood, painted a warm brown or some other neutral color, harmonizing with the stone trimmings.

The chimney tops are a plain pattern of Terra Cotta, 5 feet high, costing at the agent's office in New York about $5 25 each. (Owing to an error of the draughtsman only one stack of chimneys is shown in the elevation, where there should be two.)

Interior.—The interior finish should be plain and simple in its character, corresponding with the general style of the exterior. For the wood-work white pine oiled or stained would be very appropriate, while the walls may be covered with some neat pattern of paper, or, simpler still, the plastering may be colored a light, lively tint.

Roof should project three feet.

Cost.—In New England this cottage built thoroughly in the above manner would cost about $3,800, including Greenhouse.

ENGLISH STRAWBERRIES VERSUS NATIVES.

In the April number of the present volume, Mr. Saul, in commenting upon my article in the January number headed "English Strawberries versus Natives," starts out by asking the question "Would not good culture *versus* bad be more appropriate." I may be somewhat dull of comprehension, but I certainly cannot see the slightest similarity between the two, unless Mr. Saul is under the impression that the proper cultivation of each is to trench and manure the ground at a cost of one or two hundred dollars an acre for the foreign varieties, while to take a crop of grass off the ground in the fall and burn it over in the spring is all that is necessary for the natives; this is the inference to be drawn from both Mr. Saul's articles upon strawberries. Now, I would call it cultivating the one upon the "high pressure" principle, while for the other it is no cultivation at all.

I stated in my article "To make any fruit profitable for market there are several things requisite; fine flavor, good size and appearance, hardiness, regular and good crops, with the *least labor*,—and the nearest we can have all these qualities combined in one fruit the more profitable it is." I will take up the different points in the order Mr. Saul has taken them.

I am surprised to see Mr. Saul places the Alice Maud among those varieties of superior flavor. No good judge would call it a high-flavored fruit; this is admitted even by the cultivators of it; as for the other varieties named by Mr. Saul, I can assure him I can produce five persons who will decide in favor of Hovey's Seedling, Prince's Magnate, or Bayne's Favorite, where he can get one person to decide in favor of the varieties he has named. As to the pomologists Mr. Saul refers to, I would first wish to know whether they reside on this or the other side of the Atlantic. A fruit may be of "exquisite flavor" in the cloudy atmosphere of London, but it might be worthless in the neighborhood of Washington.

Next comes size. Mr. Saul says in the neighborhood of *London* "British Queens are frequently shown six inches in circumference;" did Mr. Saul ever see a crop of British Queens grown to that size in the neighborhood of *Washington*? He must surely know that every attempt to cultivate them here has met with failure; like their namesakes, they cannot flourish so near the Capital of this great republican nation. The Magnum Bonums referred to by Mr. Saul, raised by Mr. Lambert in 1857, were very large; indeed, might have been called of mammoth proportions; at the time they created quite an excitement in the horticultural circles around Washington, and Mr. Lambert could have sold the plants readily at ten dollars per hun-

dred; but where was the Magnum Bonum in 1858? and where was it this year? Like many of its predecessors, it shone brilliantly in the horticultural horizon for a season, then sank into oblivion, never to rise again. I have taken the trouble to learn how Mr. Lambert raised those berries. He had a bed which was as rich as it could be made; besides this they were mulched several inches deep with tan, and watered almost every evening, from the time the fruit set until it was ripe. To use the language of Mr. Slater, they were "nursed to death." Under such treatment they have been a failure two seasons out of three; besides, would any sane man attempt to raise strawberries by the acre profitably in this country with such cultivation? Yet Mr. Saul brings up the Magnum Bonum as evidence in favor of foreign strawberries.

The Victoria with extraordinary cultivation is of large size; and so is an overgrown turnip, there being about as much solidity in the one as there is in the other. As for color, Mr. Saul and I differ as to what is a bright red; surely the dull greenish red of the Alice Maud, or pale color of the Victoria, giving it the appearance of being green when fully ripe, cannot be compared to the rich bright scarlet of Hovey's and other native strawberries.

Mr. Saul's own admissions prove that foreign strawberries are not as hardy as our natives. He says, in speaking of what he calls the "least labor system," which means grass and strawberries together,—"the strawberry patch to be mown soon after the fruit is gathered, and in place of a nice mulching of rotten manure in the fall the grass has grown and become matted through the plants, to prevent their freezing out during the winter. In the spring they are cleared out expeditiously by burning the patch over, and the plants are ready to bear again." Truly does Mr. Saul say, "under such treatment the foreign varieties pertinaciously refuse to grow;" he might safely have said there would not be a vestige of a plant left; yet the natives bear a crop of fruit. Again Mr. Saul says, "not only should the ground be trenched and highly manured, but the soil should be an adhesive loam approaching to clay,"—or in other words, *they must have a soil of a peculiar texture* or they wont succeed. The natives do well upon any soil which will produce a crop of wheat or corn. If Mr. Saul recommends a cherry, or a pear, or a rose, is not hardiness one of the principal requisites? aye, would he not sacrifice some other qualities to a certain extent, to hardiness? The farmer plants corn that fires the least; he sows the wheat that is least subject to smut, and plants such potatoes as are least affected by the rot; and why will not the same rule hold good for strawberries?

Next in order comes the "*least labor*,"—the clause Mr. Saul seems not to understand. I will state what I call "least labor." If it costs Mr. Saul $150 to prepare a piece of land, which I will prepare for $50, and it costs Mr. Saul $50 more for mulching, &c, in the fall, and I raise the same amount of fruit for which I get the same prices,—or in other words, if the income is the same, I have the advantage of $150 dollars in the outlay. Mr. Saul would trench with the spade, and manure heavily; (this last is not by any means a cheap article in Washington). I will break up the the land with the plow, and subsoil, and if the land is of pretty good quality, put on 300 lbs. of guano to the acre, *and keep the plants clear of grass by cultivating them during the summer.* I can assure Mr. Saul the next spring I can show as fine fruit and as much of it, which will bring as good prices in the market as Mr. Saul can produce upon his highly-prepared land and foreign varie-

ties :—now these are not merely assertions, but facts, which are yearly proved around Washington city.

Mr. Saul asks if I ever saw Mr. Slater, or Mr. Cammack, sell Alice Maud at twenty cents per quart. I have seen the first-named gentlemen sell them for that and less. Mr. Cammack, I believe, does not raise the Alice Maud. I am also cognizant that Mr. Slater frequently gets a dollar per quart for his first berries. But is Mr. Saul aware that Dr. Bayne gets at the same time as much and even more for his strawberries? and has Mr. Saul ever known Dr. Baynes' strawberries to sell for less than Mr. Slater's, or Mr. Cammack's? Their stands in the market are contiguous, which affords a fine opportunity to compare prices; and does not Mr. Cammack get as much for his Hovey's Seedlings as he does for his other varieties? if not, why is it he cultivates them.

I am surprised that Mr. Saul should speak so lightly of the experience of Dr. Bayne, a gentleman who has devoted a lifetime to the cultivation of fruit, and who might properly be called the pioneer of horticulture, not only around Washington, but of southern Maryland. Dr. Bayne is not merely a theorist, as Mr. Saul would infer, but he puts theory to practice, the only true way to come to correct conclusions upon any subject. In reference to Dr. Bayne's failure with foreign strawberries, I will merely state that his farm contains some three hundred acres, with almost every variety of soil, and with deep trenching, high manuring, and thorough after cultivation; upon soils of almost every grade, from a stiff clay to an alluvial soil two or three feet deep; and if they would not succeed under these circumstances, is it not natural to conclude they at least won't suit our climate *unless they have a very peculiar soil to luxuriate in.*

Mr. Saul wishes to know "Who are nearly every strawberry grower in the neighborhood of Washington city;" not only Dr. Bayne and myself, as Mr. Saul would infer, but numbers of others, who, like Mr. Saul's friends, are hard-fisted tillers of the soil, whose object is to turn every acre of their land to the best advantage; men who have tried foreign varieties and have thrown them aside as unprofitable. A few of them I will name, and if Mr. Saul takes the trouble to make inquiries he will find the statements I make are correct. Mr. Douglas, near the Eastern Branch, cultivates several acres in strawberries, principally Hovey's Seedling; he raises heavy crops of fine fruit which he does not even find necessary to send to market, as his fruit is engaged before it is ripe. Mr. Douglas tells me he has cultivated Victoria, Kitley's Goliath, and nearly all the English varieties which have come to us with high-sounding names, and out of the whole he considers none of them worth having except the Alice Maud, and that cannot always be relied on. Mr. Bell, near Bladensburg, cultivates half an acre of Hovey's Seedling; he picked this season 1500 quarts. The Messrs. Febrey, of Alexandria co., Va., cultivate about seven acres; they have just closed up their crop for the season, having picked 20,000 quarts. Besides the gentlemen named, there are many others who raise heavy crops of strawberries, which, in point of size and appearance, compare favorably with any strawberries in the market, and sell for as good prices; yet they were raised for less than half the expense and labor which Mr. Saul says is necessary to raise a crop of English strawberries.

As to my making use of Mr. Cammack's name, I drew my conclusions from a conversation which several gentlemen had in the horticultural fair

room a year ago. Dr. Bayne remarked that he would give $100 for a dozen plants of a better strawberry than Hovey's Seedling, to which Mr. Cammack replied, "I will give $200;" that, and the fact that Mr. Cammack cultivates Hovey's Seedling extensively, more so, I believe, than all other varieties together, induced me to make the assertion which I did. As to my not being personally acquainted with Mr. Cammack, it may be ignorance in me, but it certainly is the first I was aware of its being a breach of etiquette to make use of a gentleman's name in the general way in which I made use of Mr. Cammack's. It certainly was not my intention to misrepresent him.

A few words in reference to the Washington Horticultural Society. Mr. Saul is aware that there is at least one week's difference in the ripening of fruit between the northern and southern sides of the city. Now, had the exhibition a year ago been held at the time first named, I am confident the prizes would have been reversed; *but the exhibition was postponed one week*, which brought it in the very nick of time for Mr. Saul, Mr. Cammack, and other gentlemen living on that side of the city, to display their strawberries to the best advantage. And how were the prizes awarded? Mr. Cammack took the first prize, and Dr. Bayne (although laboring under the disadvantage of its being a week too late for him) took the second prize, over all other competitors, including Mr. Saul himself.

Mr. Saul wishes to know why it is that I have never appeared in competition at any of the horticultural exhibitions. It has been from the fact that until lately I have been so situated I could not pay that attention to strawberries that I would have wished. But Mr. Saul has frequently exhibited his strawberries, and I have yet to hear of his premiums.

I do not consider it a true criterion that any fruit will be profitable for market purposes, merely from the fact that it does well for one or even two seasons under the careful nursing of an amateur gardener. I will again state that with equal cultivation, our leading American strawberries will throw every foreign variety far in the background as a profitable market fruit; and if I am not mistaken such is the opinion of nearly every strawberry-grower in the neighborhood of Washington city, with the exception of a few, who, like Mr. Saul, are "joined to their idols."

The following varieties can be relied on in this vicinity as profitable for market: Hovey's Seedling, Prince's Scarlet, Magnate, McAvoy's Superior, and Bayne's Favorite; the last is a strawberry cultivated for some years by Dr. Bayne, which only requires to be generally known to become popular. Wilson's Albany has done remarkably well this season wherever it has been tried, but will require another season's trial to establish its reputation.

SCIENCE FOR COMMON SCHOOLS.

One reason why Horticulture and the kindred sciences have not, heretofore, been taught in our common schools, may lie in the fact that we have not had suitable text books to favor the object. But times are changing,—wise men are growing wiser, and are coming to the conclusion that knowledge does not admit of monopoly, but her store-house is open to all who will enter in to secure its treasures. It is, therefore, no longer thought important, that science should be locked up in technicalities, that it requires

years of the best portion of one's life to understand. No, our wiser and better men now study simplicity, and bring their knowledge within the comprehension of all: we have this fact happily illustrated in a recent work on Botany, by Prof. Gray of Cambridge, who, as authority in the science, is second to no one. Premising that all intelligent cultivators will admit that the knowledge of plants is a *very important* knowledge to every cultivator of the soil, and a very pleasant study for the minds of the old as well as the young, his "How plants grow" probably contains more facts pleasantly narrated on the subject, than any other work extant, and they are just such facts as will tend to make the labors of plant growers pleasant and successful. It is just the book for the common school, or the common reader. His "Lessons in Botany" is written in the same understandable style, and is followed by the structural and systematic Botany, and this again by his Manual:—the whole making a beautiful series on a highly useful and attractive science, adapted to the capacities of all. We shall hope for its introduction into farmers' families and common schools as fast as the publishers can furnish copies.

Geology and its kindred science Mineralogy have very much to do with terra culture, besides furnishing rich pasturage to the mind while engaged in cultural pursuits. In our country, it is comparatively a new science, scarcely known in our colleges a half century ago. Its growth, however, from the healthful aliment that has been given it, has been rapid in extent, and beautiful in symmetry.

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In the introduction of foreign plants, great losses have no doubt arisen in consequence of the ignorance of the cultivator of the geological formations and physical features generally, of the localities from which they are brought. We have long wished to see some work on this subject, wherein the young might gain such information, and have at last been gratified to a large extent by the appearance of Fitch's Physical Geography,—which, for a work of its size has very much to commend it as a general school-book. All students, in descriptive geography, will see the importance of connecting the physical, and for young horticulturists it contains a host of facts of a practical nature. The above works are all got up in good style, at cheap prices, and may be procured by giving an order to any bookseller; we wish they were universally known instead of the foolish literature that is introduced, one hardly knows by what processes, into most families in the country.

S.

New Books.

Horticultural Review.

American Weeds and Useful Plants; being a second and illustrated edition of *Agricultural Botany.* By WILLIAM DARLINGTON, M. D. Revised, with additions by GEORGE THURBER, Professor of Materia Medica and Botany, &c., in the New York College of Pharmacy. New York: A. O. Moore & Co. 1859.

This excellent reprint of a valuable book has laid too long on our table without notice; but other topics have been absorbing, and we now turn to it with the desire of impressing its importanceu pon our readers especially. Weeds require attention as much almost as our valuable crops, and it is something to know what they are and how to get rid of them. Some of our best plants may be weeds where they grow naturally, but we call all by the name which interfere with wholesome cultivation. In that thoughtful book entitled "Companions of My Solitude," by the author of "Friends in Council," the writer gives a picture of a puzzled little girl, who came running to his knees and held up a straggling and pretty weed. Then with great earnestness, and as if fresh from some controversy on the subject, she exclaimed,

"Is this a weed, Papa? is this a weed?"

"Yes, a weed!" he replied.

With a look of disappointment she moved to the one she loved best, and asking the same question, received the same answer.

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"That does not signify; it is a weed," was the inexorable answer; but, notwithstanding, the little girl asks Nicholas, the gardener, to plant it in her plot, which children walk about upon a good deal, and put branches of trees in, and grown-up flowers, and then examine the roots, (a system as encouraging as other systems of education that could be named), and which they call their gardens!"

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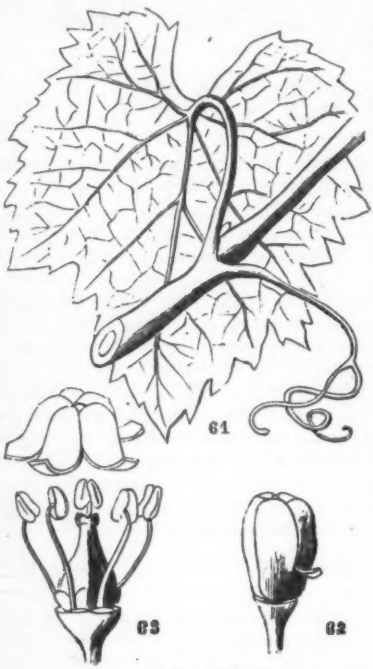
Dr. Darlington, long since, was anxious to call the attention of farmers and gardeners to the subject of weeds, about which so much neglect is too often apparent, and on his excellent frame-work Professor Thurber has erected a complete superstructure. This is a great advance on the original work because it is greatly enlarged, and it is capitally illustrated, an advantage which Mr. Moore, the publisher, is well qualified to direct, and if necessary, himself to perform, as well as to know when the performance is properly done.

To use no more words, however, on the subject, beyond an entire commendation of both matter and manner, we proceed to copy a few of the illustrations, in the belief that in doing so, we recommend the book to every cultivator. Our first picture will be the common Wild Grape, which if not *a weed*, is at least a cumberer of the ground, now that we have so many fine native varieties.



Common Fox Grape (Vitis Labrusca).

Summer Vitis. Little Grape. Common Wild Grape.

Stem 20–40 and sometimes 60 feet or more in length. *Leaves* 4–8 inches long, often palmately lobed with rounded sinuses—the younger ones with a loose cobweb-like russet pubescence beneath, which becomes coarser and more hirsute with age, and sometimes nearly disappears. *Berries* globose, small, (generally about one-fourth of an inch in diameter,) deep blue or bluish black when mature, and covered with a fine glaucous powder—the skin thinnish, and the flavor (especially after a little frost) a sprightly agreeable acid.

Rich woodlands and thickets: Connecticut to Florida. *Fl.* June. *Fr.* October.

Obs. This is the tallest climber of all our Grape-vines, in Pennsylvania; and I have seen an old vine, of this species, 8–10 inches in diameter, at base. The fruit varies in size and quality,—the best specimens being well worthy of culture. I have cultivated a native of this vicinity, in which the fruit often equals that of the "English Grape" (or Miller's Burgundy), in size; and although somewhat harshly acid, it abounds in a rich purple juice, at maturity,—and makes a fine preserve for pastry.

We now come to one of the greatest nuisances the farmer has to encounter:

17. LEUCANTHEMUM, *Tournef.* OX-EYE DAISY.

[Greek, *Leukos*, white, and *Anthemon*, a flower; in reference to its white rays.]

Heads many-flowered; *rays* pistillate, numerous. *Involucre* spreading, broad and nearly flat,—the *scales* imbricated, with scarious margins. *Receptacle* flat or somewhat convex, naked. *Tube* of the *disk-florets* fleshy, obcompressed, and slightly 2-winged. *Akenes* of the disk and ray similar, subterete, striate, destitute of pappus. Perennial *herbs*. *Leaves* alternate, mostly pinnatifid or incised-dentate. *Heads* rather large, solitary and terminal.

White-weed or Ox-eye Daisy (Leucanthemum vulgare.)

1. *L. vulga're, Lam.* Stem erect, somewhat branched; leaves laciniately incised or pinnatifid-dentate,—the cauline ones sessile and somewhat clasping—the radical ones obovate-spatulate, petiolate; scales of the involucre with narrow russet-brown margins.

COMMON LEUCANTHEMUM. Daisy. Ox-eye Daisy. White-weed.
Fr. L'oeil de Beuf. *Germ.* Die Wucherblume. *Span.* Margarita mayor.

Stem 1 to near 2 feet high, erect or subdecumbent, angular and striate, somewhat hairy, simple or sparingly branched, but often several from the same root. *Leaves* 1–2 inches long, the upper stem-leaves oblong, the lower ones cuneate-spatulate, and the radical ones obovate or orbicular-spatulate. *Heads* broad; *rays* very white—in length about equal to the diameter of the disk; *disk-florets* yellow. *Akenes* subterete, ribbed, smooth, dark purple between the ribs, destitute of pappus. *Receptacle* slightly convex, dotted.

Fields and meadows, more or less throughout the United States: introduced. Native of Europe. *Fl.* June–Aug. *Fr.* July–September.

Obs. This vile intruder is becoming a great nuisance in our country. In some districts the careless, slovenly farmers have permitted it to get almost exclusive possession of their pasture fields,—rendering them quite white when the plant is in bloom. Cows will occasionally crop a portion of the weed in our pastures,—and I have heard it alleged that it contributes to the making of good butter: but my own observations induce me to regard it as utterly worthless. It is propagated rapidly, and is, moreover, exceedingly difficult to get rid of, when once fully established; so that one negligent sloven may be the source of a grievous annoyance to a whole community. I have understood that annual ploughing and cropping for a few years, is the most effectual remedy for the evil; but then the fence-rows and neighboring fields must be well watched, to prevent the formation and introduction of fresh seed. The Corn Marigold (Chrysanthemum segetum, *L.*, a kindred plant)—which is said to be such a pest to the agriculture of Europe—does not appear to have found its way, as yet, to the United States.

The "Divining Rod" has still its believers among us. Hear how they are treated by Dr. D. under the head of *Corylus Avellana*, L.

1. C. AVELLA'NA, *L.* Leaves orbicular cordate, acuminate; stipules ovate-oblong, obtuse; involucre about the length of the fruit.

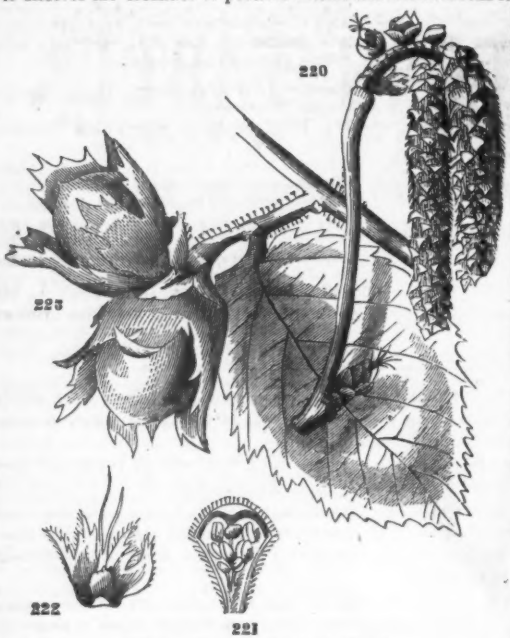
AVELLAN CORYLUS. Filbert. Hazle-nut.

Stem 6–10 feet high, branching from the base. *Leaves* 3–5 inches long, often obovate-cordate, doubly serrate; *petioles* ¼–¾ of an inch in length. *Pistillate flowers* few in scaly clusters,—the *scales* (or *bracts*) enlarging, uniting and forming the *involucres*. *Stigmas* purple. *Nuts* rather large.

Yards, &c. Native of Asia Minor. *Fl.* March. *Fr.* Sept.

Obs. The Filbert, or Hazle-nut of the old world is now becoming known among us,—and not unfrequently cultivated. "The bushes were originally imported into Italy from Pontus, and (the fruit) known among the Romans by the appellation of *Nux Pontica*,—which, in the progress of time was changed into that of *Nux Avellana*; from the place (Avella, near Naples)

where they had been most successfully propagated." The young forked twigs of this shrub constitute the celebrated divining rod with which certain imposters beyond the Atlantic pretend to discover the localities of precious metals and subterranean fountains. The imposture and the credulity on which it operated, have both reached our shores; but the Filbert not being indigenous here, a capital substitute was discovered in the Witch Hazel (Hamamelis)! The twigs of Peach trees also, have been found to answer the purpose nearly as well as the Witch Hazel; and thus the occult sciences of ore-finding and water-smelling, have been enabled, in some degree—even in this "progressive" age—to keep pace with the sublime mysteries of Clairvoyance, and Spiritual Rappings, as well as with the lucrative manufacture of Panaceas, and Indian Specifics. It is indeed both humiliating and discouraging to contemplate the facility with which a large portion of mankind can be made the dupes of such miserable trumpery.



Filbert or Hazel-nut (Corylus Avellana).

The Canada Thistle, and all our great cumberers and nuisances, are treated in this lucid manner; many more than we have inserted we had marked as of interest, but space fails us. We have given enough to designate its great value to the public, and as a book of reference it will be always useful to have at hand.

Smearing Trees.—It is not clear to every one whether smearing trees with pitch or grease in order to keep off insects is mischievous or not; some people asserting that such applications are highly dangerous, others that they are highly beneficial. Considering how important it is to settle this point, Mr. Jaeger has recorded in the *Monatsbericht fur Pomologie* the result of some experiments that he has tried.

A mixture of tar and whale oil was applied to some fruit trees six years old in perfect health, in the spring before they were quite in leaf. 1. A tree, the trunk of which was covered all over by the mixture, pushed feebly; when the tar became firm the bark burst in various places, and began to bleed there. By the autumn the tree was well nigh dead. 2. When the trees had their stems covered only one-third or half-way up, they took very little harm, pushing freely the year afterwards. 3. When only a ring a hand's breadth wide was tarred they took no harm at all.—*Botanical Magazine.*

EDITORS TABLE.

To Contributors and Exchanges, &c., &c.

Communications, Letters, Catalogues, Periodicals, &c., &c., intended for the perusal of the Editor, should be uniformly directed to the HORTICULTURIST, *Germantown*, (*Philadelphia,*) *Pa.* Packages by Express, &c., should be directed to the Editor, as above, by name ; they will thus reach him almost beyond a doubt.

USEFUL TREES FOR SHADE AND ORNAMENT.—It has been suggested that in the efforts that have been made to ornament the more costly country seats of the United States, the landscape gardener has lost sight of the largest class of planters; that a thousand country gardeners cannot afford costly evergreens or rare foreign plants, and in fact could not get them if they wished to do so. Again, it is urged with a show of truth, that very many occupy so contracted a space of ground that to get the full advantage from it, their trees must yield something more than ornament. Can we, then, plant our rural homes with useful and at the same time ornamental trees? Shall we compromise a little, and not have it for a principle that nobody of taste shall admit a productive tree on his lawn?

The severe rules of the true artist, may, we think, allow of such use in very numerous cases, and we like the suggestions of a valued correspondent, Col. D. S. Dewey, whose communication we insert below. At the moment of writing, the following trees come to memory, and we may add that the enjoyments of a rustic home may be greatly enhanced by considering the *utile* with the *dulce* in this matter.

In a lawn not many miles from the city of New York, where we are sure there has been as much enjoyment and as much true happiness as in the most lordly mansion of this earth, there stand two Siberian Crab Apple-trees, one in front of the parlor, and one before the dining-room window. The first sight of these trees in spring, clothed all over, as they universally are, with fragrant blossoms and the promise of useful fruit, may give as much gratification, and does so, as the lordly owner of a forty-acre lawn receives from his Magnolia conspicua, which though a handsome tree in all its stages, yields nothing for sustenance. The flowering is followed almost always by a most bountiful crop of beautiful fruit—coral in color, and affording a useful conserve. The lady who presides over the homestead, supplies her own closets with abundance of winter sweets, and sends to her neighbors and tenants bushels of the beautiful fruit. All may not be fond of this preserve, but many are so, and if the fruit were to be thrown to the swine, its beauty during months of growth is sufficient to recommend it. We are sure these trees are more valuable than many an evergreen struggling through its winter difficulties. No disparagement, however, to ornamental trees, exclusively so-called, is designed; they will maintain their position.

We have in the present number made a few hasty observations on avenues, a subject deserving attention. The Hickory-nut is there suggested. As an ornamental and productive tree, what could be better? Its shape, foliage, and curious bark, its stately *American* character, and

its produce, surely recommend it. Slowness of growth should be no obstacle, for if our ancestors had never planted, where would have been their posterity?

Some of our friends have adopted the only tropical-looking fruit we possess; the Papaw, *Anona triloba*, is one of the most beautiful small trees we have in the Middle States. Its flower, quite unique and beautiful, is succeeded by a fruit of rare merit, more resembling the coveted Banana, perhaps, than any other. At Bartram's garden, near Philadelphia, bushels are produced. The leaf is singularly handsome, and the stem of the tree has few rivals for beauty.

The native Walnut, and the Chestnut, must not be forgotten. Who that has gathered their fruits in youth but delights to reproduce the pleasures of childhood, and go to work at "pulling" and "opening" with renewed gusto!

The farm, where most of our own tastes were fostered, was situated within the moderate distance of seventeen miles from Philadelphia. It had been the residence of a colonial governor, whose house still stands, with its gable end bearing the marks, in colored bricks, 1695. The governor took such fruit-trees as he could then procure, and began with a double avenue, near the house, of native Walnut-trees, which in our time annually supplied wagon loads of fine nuts, and also afforded shade and play-ground to successive generations of happy children, who doubtless thanked the planter.

But the great feature was a continuation of this avenue for quite half a mile, planted with a double row of Black Heart and Honey cherries, that attained a great age and commensurate size. For an entire century these celebrated cherry-trees were the resort of a large neighborhood, and were the source also of a stolen supply to the Philadelphia markets. It is true that the hucksters, no less than some otherwise good neighbors, considered them too much in the light of public property, and often "made a day of it" under their huge shadows, or in their forked branches, not unfrequently turning their horses into the adjoining clover-fields—a trespass winked at by the liberal proprietor, whose delight was to see others enjoy themselves, and make a penny from the enormous superfluity. One after another of the double row of trees fell a victim to great age, and not one is now among the living. The farm is no longer *distinguished for anything*. Walnuts, and dried cherries cured so carefully in milk-pans set out in the sun, no longer cheer the winter evenings, for no more fruit-bearing trees have been planted on old "Green Hill."*

Now, it may be annoying to have one's clover-field taxed for other peoples horses, but with modern habits there is no difficulty, where there is abundance, in disposing of the right to pick certain trees, and we know of an instance where from two to four hundred dollars is the annual income of a gentleman, from his cherry-trees alone, that were planted by his father. Is this nothing? Is an avenue of cherry-trees that will pay for an education for two or more children, unworthy of our regard? Think of it—planters of high and low degree.

In Cuba, where the coffee plantations require shade, a great feature is the avenues of fruit-bearing trees, and no part of the beautiful island is more attractive than these long stretching arms of cocoa-nuts, oranges, lemons, grape-fruit, shaddocks, or nut-trees.

But to our correspondent, to whose ideas we give a welcome, and shall be glad of suggestions from others:

"And now, with regard to that temporary hobby of mine, viz.: fruit trees for shade and for decoration. It is a matter which, I think, should be in the hands of amateurs only, for the present. The subject needs no argument;—it is certainly one of *growing* importance;—and many a tree-planter would, doubtless be thankful for such information as would enable him to combine utility with beauty in the adornment of his homestead.

"Those aristocratical beauties called 'ornamental trees and shrubs' are well enough,—in fact, are indispensable,—in their way; but there are thousands of places, and thousands of circum-

* Where we had a favorite seat thirty feet up a Shellbark tree that bore bountifully of nuts; and was also eashrouded to the very top with a productive grape-vine.

stances where *well-ordered* fruit-bearing trees might with propriety usurp their places, without a sacrifice of taste.

"The Black Tartarian cherry, the Belle de Choisy, and the Coe's Transparent, are all handsome-growing; each in its own way of natural habit. The Early Strawberry apple, the Northern Spy, and the Red Astrachan, always grow in good shape, so far as I have observed; and the same may be said of the Tyson, the Onondaga, and the Pinneo pear, (as standards); and the Duchess, and one or two others, as dwarfs,—(when and where dwarfs can be made to flourish.)

"If amateurs will respond to suggestions on this topic, I think that by the time of spring-planting, a respectable list of ornamental fruit trees might be made, which, with further observation with particular reference to this point, may eventually be so extended as to form a distinct class in our nurserymen's catalogues.

"Fortunately, many of our best kinds of fruit-trees,—including the nut-bearing varieties,—are among the handsomest in form, foliage, flower, and fruit. Yours, &c., D. S. D."

CALIFORNIA FARMER.—This excellent paper is again upon our table after an absence of months, owing to being misdirected. It is redolent of fruits and flowers, agriculture, tree-planting, and all that relates to home. We learn from it that strong efforts are constantly being made to introduce the best fruits of all countries; occasionally, too, we glean the fact that the inhabitants are beautifying their dwellings, and enjoying to the full the beauties of nature by which they are so easily surrounded by a little care and culture. It is one of our best parishes, and the editor of the *Farmer* a good vestryman, in whom we recognize a disposition to progress in all that is useful. He discusses the national emblem, which it would be proper to adopt, thus: "'To the ladies of the Mount Vernon Association, then, let the trust be committed of selecting the appropriate badge, or emblem of American freedom; and let it emanate from those who have thus nobly saved to our country and the world that holy ground —the resting-place of George Washington!'

"The above is found in the *Horticulturist*, and has been copied into many papers throughout the United States with various suggestions; but of all the 'badges for American freedom,' we have found none yet proposed that seems appropriate to so exalted a theme as *American freedom!*—embracing Human Liberty; Human Progression; Civil, Political, Religious, aye, Mental Freedom! There is but *one tree* under Heaven emblematical of this God-breathed spirit; and that tree, the Oak! It is a native of the British Isles, from whence the May-flower sailed. With the early Pilgrims came the spirit of American freedom, and upon the bleak shores of New England was it planted. That spirit of freedom has spread East, West, North, and South. Its watch-fires light up every hill throughout our blessed land; and over all her hills and mountains the Oak is found; its roots have gone deep into the earth, and its broad and spreading branches offer shelter and shade in storm or sunshine. The Oak then for freedom! Its bright, glossy leaves will endure the burning sun, or bear the winter's cold, better than any other known. The Oak is the most appropriate emblem of our love of liberty. From the Oak are made many of the implements of agriculture and our best machinery—our wagons, carts and carriages roll round upon the Oak, and not a word is *spoke* for liberty but finds its *fellow* near the circle, and all will go to the *hub* in defence of liberty. Give us then a *wreath of Oak leaves*, as the crowning emblem of American liberty! And when the patriot and statesman has done his duty in his country's cause, bind not his brow with the *Poison Ivy*, but grace them with the Live Oak! fit emblem of liberty, which is eternal."

(This is excellent, and we shall all be charmed if the ladies of the Mount Vernon Association will decide.—ED.)

THE ISABELLA GRAY ROSE, says the *Gardener's Chronicle*, a fine double yellow variety, about which and against which so much has been said, is beginning to show her true character and to vindicate her claim to stand in the first rank of beauty.

MR. HOWARD DANIELS, landscape gardener, of New York, has been employed many months

in adorning and improving that beautiful watering-place, the White Sulphur Springs, of Virginia, and all accounts agree that he has, as might have been expected, greatly added to attractions that nature has arranged with so much success, and which is, probably, the most resorted to of any public place of the kind in America.

THE ORCHARD HOUSE.—We have some practical remarks for publication next month on the Orchard House in America, by our practical friend "Fox Meadow."

LETTERS ON MODERN AGRICULTURE, by PROFESSOR LIEBIG, edited by John Blyth, M. D., is the title of the new work issued in London. It has not reached our table, and we must be content to take at second-hand a few extracts from English journals:

"Nothing," says the *Gardener's Chronicle*, "can be more just than the following comparison of the plough and the spade, and we trust that cultivators will appreciate it; for it involves some of the greatest of truths, an entire conviction of the importance of which is all that is wanted to terminate the career of an antiquated implement whose merit consists in its ability to perform much bad work in little time.

"If the food of plants in the soil cannot move towards the roots, it is evident that the roots must spread about to look for food.

"A piece of bone weighing about 30,000 milligrammes (one ounce), in a cubic foot of earth, produces no marked effect on its fertility. But if these 30,000 milligrammes of phosphate of lime be uniformly distributed throughout the earth, it will suffice for the nourishment of 120 wheat plants. Ten thousand milligrammes of food, having a surface extent of 100 square millimetres, are within the same given time not more effective than ten milligrammes having the same surface extent. Of two fields with the same amount of food, one may be very fertile and the other equally unfruitful, if the food is more uniformly distributed throughout the former than the latter.

"*The common plough breaks and turns up the soil without mixing it;* it only displaces, to a certain extent, the spots on which plants are already grown. *But the spade breaks, turns and mixes it thoroughly.*

"As the smallest portions of food cannot of themselves leave the spot in which they are held firmly fixed by the soil, we can understand what immense influence must be exerted on its fertility by its careful mechanical division and thorough intermixture. This is the greatest of all the difficulties which the agriculturist has to overcome.

"Professor Liebig strongly advocates the use of green manures, a system pursued extensively on the continent of Europe.

"The keeping of cattle is necessary for the production of manure; but the production of manure is by no means necessary for the fertilization of corn fields. In the system of the rotation of crops, all that is required is that green crops should be grown, and that their constituent parts be incorporated with the arable surface soil of the field; and it is quite immaterial for the cereals whether the green crops be previously eaten by the cattle and converted into manure or not. If lupines, vetches, clover, turnips, &c., are cut up and ploughed in, in the green state, their action is far more powerful."

The following truth, so little appreciated, is happily put: "The technical part of an industrial pursuit can be learned; principles alone can be taught. To learn the trade of husbandry, the agriculturist must serve an apprenticeship to it; to inform his mind in the principles of the science, he must frequent a school specially devoted to this object. It is impossible to combine the two; the only practicable way is to take them up successively. I formerly conducted at Giessen a school for practical chemistry, analysis, and other branches connected therewith, and thirty years' experience has taught me that nothing is to be gained by the combination of theoretical with practical instruction. A student of chemistry, who attends the lecture-hall and the laboratory concurrently, positively defeats thereby the object of his stay at the school, and misses the aim of his studies. It is only after having gone through a complete course of theo-

retical instruction in the lecture-hall that the student can with advantage enter upon the practical part of chemistry; he must bring with him into the laboratory a thorough knowledge of the principles of the science, or he cannot possibly understand the practical operations. If he is ignorant of these principles, he has no business in the laboratory.

"In all industrial pursuits connected with the natural sciences, in fact, in all pursuits not simply dependent on manual dexterity, the development of the intellectual faculties, by what may be termed 'school-learning,' constitutes the basis and chief condition of progress and of every improvement. A young man, with a mind well stored with solid scientific acquirements, will, without difficulty or effort, master the technical part of an industrial pursuit; whereas, in general, an individual who may be thoroughly master of the technical part is altogether incapable of seizing upon any new fact that has not previously presented itself to him, or of comprehending a scientific principle and its application.

"I have often found that students coming from good colleges will speedily leave the pupils of industrial and polytechnic schools far behind them even in the natural sciences, though the latter, when compared with the former, were at first giants in knowledge."

THE NEW GRASS, *Spergula pilosa*, seems to be making its way to public favor abroad. Mr. D. Beaton, one of the principal writers of the *Cottage Gardener*, says in that journal:—

"I am not long in deciding on a thing of this kind, and am often put down as being too sanguine in these matters; but it is seldom indeed that things go different, or very different, from what I say. I say, then, of this lawn plant, that *it is destined to make a revolution in gardening;* that it is a discovery next to that of gas, steam, and electricity, for gardening; that every lawn in England, Ireland and Scotland may be made with it as smooth, and soft, and comfortable to walk on as any carpet in Her Majesty's drawing-rooms; and that it never wants a scythe or a mowing machine. The best lawns and the best carpets have worn out, hitherto, by time and usage, and so will this grass; but, of all the things on the face of the earth, it is the easiest thing to 'make up,' and to look as well as it did before. It will require the highest style of gardening, and it will teach this nation how gardening should be done. One of our best exhibitor-gardeners has pledged his credit, in my hands, on the point that he would willingly undertake, in one season, to cover every inch of ground which is under the scythe at the Crystal Palace with this new grass.

"A large piece of lawn, nine yards by eight yards, is already formed of it at Forest Hill; and two larger pieces of lawn, each thirty yards by sixteen yards, are now in the course of being covered with it; and ultimately every inch of the lawn all over the garden is to be covered with it, and with nothing else.

"No one can conceive the beauty of it without seeing it. The nap on the finest velvet is not more soft or more uniform; and there is a gloss all over the surface like that on the back of a mole. The garden where this has been proved is as steep as on the side of the Malvern Hills, and is of the strongest red clay; but the Spergula takes hold of the gravel walks just as readily as of this clay. It is like a mulching over the clay, which never allows the clay to crack, be the Summer ever so hot.

"The history of it is this. The proprietor, A. Mongredien, Esq., is a practical botanist; and to indulge in his favorite pursuit he has formed the most unique rock garden in the three kingdoms, at the foot of the slope, facing the north, for the growth of the fairest and scarcest cryptogamic plants in the British flora, from the tiniest ferns, through lycopodium, sphagnum, phascum, gymnostomum, Hymenostomum, trichostomum, dicranum, tortula, bryum, polystichum, hypnum, jungermannia, marchantia, and their extensive allies; also for British orchids, and the minutest and rarest alpine plants. Among the last, *Spergula pilosa*, as it is called, made its appearance; and increased so fast, and showed such delicate proportions, and such an inclination not to be kept within the limits of its due portion of the rock-work, that it seemed selfish to destroy so much of it without allowing kindred spirits to partake of the same pleasure and

amusement. Patches of it were set in better soil, and better returns were made by it; till at last, from patchwork to a whole quilt, and from that to a full-stretched carpet, which you have just heard of, were made with ease and pleasure. * * But some of the great firms in the seed trade about London would not, or could not, believe in such marvels; they must see for themselves. They did see, and were convinced that a tithe of the "properties" of this plant was not given. * * Mr. Summers has undertaken the responsibility of supplying the three kingdoms with plants sufficient to set the plant on foot, through the Messrs. Henderson, of the Wellington Road Nursery; that he has rented a greenhouse and so much ground for that purpose, and engaged a managing foreman to propagate the plant by the thousand and tens of thousands; that the concern will be called the Spergula Nursery; that he will, or could, undertake to cover the whole of the Crystal Palace grounds with this plant in one season; but for the present, and to such a period, applications for it must be made through the Wellington Road Nursery."

This all seems like success, and we hope it may so prove.

FRUIT-GROWERS' SOCIETY OF WESTERN NEW YORK.—This Society held a spirited meeting at Rochester, on the 23d of June, and discussed several matters of public and local interest. Among the latter was the late frost, in which all agreed that the Rebecca grape stood the cold better than other kinds, owing to the fact of its ripening its wood as it grows, a fact greatly in its favor.

Ringing the grape-vine was alluded to and additional trials thought worthy of recommendation. The Early Scarlet strawberry came up on a vote first, and Wilson's Albany, second, though allowed to be too acid. The next choice was Hooker, Hovey's Seedling, Triomphe de Gand, Burr's New Pine, Genessee, Crimson Cone, Jenny Lind, Cushing, Longworth's Prolific, McAvoy's Extra Red, and so on down to a single vote for Scott's Seedling, Brighton Pine, Victoria, Huy's Seedling No. 1, Walker's Seedling, and Pyramidal Chilian; all seem to have advantages, and some may have preferences from seeing each peculiarly cultivated, &c. The diseases of the pear were discussed without much new light being thrown upon the topic—Mr. Barry closing the matter with, "the whole thing (fire blight?) is mysterious." Our able reporter sends a condensed report.

ANSWERS TO CORRESPONDENTS.

AMBROSIA APRICOT.—J. J. SMITH, ESQ.:—For the benefit of your correspondent, James Truitt, I would say the "Ambrosia Apricot" is of French origin. We imported it from Mr. Rivers some years since—fruited once and died. It has also fruited in the nursery of Daniel Brinckerhoff, Fishkill Landing, N. Y., and no doubt other places. It is of upright, vigorous growth, fruit rather large, quite early, and of excellent flavor; in fact, few are superior to it. Many of the nurserymen now advertise it for sale. CHAS. DOWNING.

THE POMOLOGICAL REPORT.—At a late meeting of the Hartford Horticultural Society, Dr. Russell presiding, the fact was brought to the notice of the Society that the Report of the proceedings of the American Pomological Society neglected to state the action of the Society in regard to the Hartford Prolific grape. Several of the delegates of the Society to the meeting of the American Pomological Society were present and gave their testimony, after which the following resolution was unanimously passed:—

"*Resolved*, That from the direct testimony of delegates of this Society to the American Pomological Society, we are entirely satisfied that the Hartford Prolific grape was thoroughly discussed, and put on the list of those promising well, by that Society at their meeting in New York last fall."

We have had various communications from persons present, stating that the "Report" did not embody the expressions and sometimes the opinions expressed at the meeting—some were modified, and some did not appear at all. We had a careful reporter on the spot, and it is quite remarkable to see the difference between the two accounts.

CATALOGUES, ETC., RECEIVED.

WHAT MAY BE LEARNED FROM A TREE.—Mr. Harland Coultas has brought this highly curious and interesting treatise to the third number; the fourth is in press, and we cannot recommend the expenditure of a dollar more agreeably and usefully than in the purchase of these at a cost of twenty-five cents each, enclosed to Mr. Coultas, Philadelphia. The numbers will be mailed to the purchaser, who will find a philosophical treatise on a subject of the deepest interest. Mr. C. depends upon subscriptions, having no bookseller.

Eleventh Annual Report of the Young Men's Mercantile Library Association of Pittsburg. 1859. This exhibits a taste for progress, and the books and lectures are doubtless sowing seeds of knowledge to save life from being a blank.

List of Premiums of the New Jersey State Agricultural Society for the Fifth Annual Exhibition, to be held at Elizabeth, 13th to 16th of September, 1859.

D. Miller, Jr.'s, Descriptive Catalogue of Fruit Trees, etc., etc. 1859-60. The Cumberland Nurseries, near Carlisle, Penn. Full and complete.

Illustrated and Descriptive Catalogue of Hardy Native Grape-Vines; also, of the Choicest Exotic Vines for Cold Vineries; of Gooseberries, Currants, etc. East Avenue Nurseries of Charles P. Bissell and Josiah Salter, Rochester, N. Y. A very handsomely illustrated catalogue, giving reliable information, and such as every person owning space for a vine in town or country should consult. We have seen no list more judiciously made, and the amateur who reads it will thank the authors, who we are glad to learn are reaping the reward of judicious cultivation and character earned by years of careful study.

No. 2 of A. Frost & Co's Descriptive Catalogue of Roses, Ornamental Trees, Shrubs, Bulbs, &c., &c., Rochester, N. Y. An able exposition of a good stock.

Fruit and Ornamental Trees and Shrubs. A hand-bill announcing that Mr. Samuel Miller has disposed of his stock at Calmdale, Lebanon county, Pa., to Wm. M. Hastings. We feel sure, however, that our friend will always grow fine fruits somewhere.

Lyte & Conard, Fruit, Shade, and Ornamental Trees, Enterprise, Pa.

W. C. Tucker, of the Washington Nurseries, Columbus, Miss.

A. F. Conard & Brother, West Grove, Pa.

Richardson, Warren & Co's, Abridged Catalogue, Olcott, N. Y.

Gossip.

THE GRAPE CROP ABOUT CINCINNATI.—Prospects for a splendid grape crop are brilliant. Having escaped the biting frost of June 5th, we are inclined to think the grape safe from all other evils. Should expectations be justified, this year's product will amply compensate for last year's failure. Vintners estimate the superficial area devoted to vineyards, in this county, at upwards of 2,000 acres, and some are sanguine that the average product will be 400 gallons of wine to the acre, or an aggregate of 800,000 gallons, (last year it was but 17,500). At an average of $1 25 per gallon for the new wine, the crop would be worth $1,200,000. If the quality is superior, the value will be greatly increased, but $1 25 per gallon is the usual average.—*Ohio Cultivator.*

WHAT'S IN A NAME?—The Baltimore manure-makers and venders seem to place great faith in the term "manipulated," as applied to guanos,—for instance, the *American Farmer* advertises the "Excelsior manipulated guano," "Manipulated guano," "Higgin's per-manipulated guano," "Manipulated phospho-Peruvian guano."

There is a show of honesty in these names, for the true guanos are unmanipulated, and so

the term implies that it has been worked over in some way, and mixed with other things,—which is doubtless very true.—*Homestead.*

THE CORK TREE IN CALIFORNIA.—Messrs. Dressel & Co., of Sonoma, California, about three months ago, set on their ranch the seed of 100 cork trees, obtained from the Patent Office, at Washington, D. C. Of this number 85 have lived, and are now about six inches above the ground. No irrigation was used, and the young plants were exposed to the blighting effects of the cold spring winds, but, notwithstanding, they look quite healthy and flourishing.

SOUTHERN FRUIT.—In the *American Farmer* is a list of a baker's dozen of new Southern seedling apples, by J. Van Buren, of Clarke co., Georgia. Judging from the descriptions, some of them are very remarkable. One of them sometimes measures twenty-one inches in circumference. It is called "Cullawhee, and resembles a huge pomegranate. Another, the "Horn," is "hard as a billiard ball and keeps eternally." Another bears the euphonious name of "Cottugajah, or Raw Bread."

LEAFLESS PEAR-TREE LIVING TWO YEARS WITHOUT PUSHING.—The following is a remarkable instance of a pear-tree living two years without putting forth a leaf. A young rider-tree of the sort called Poire Belgæ (?) a kind very much resembling the Beurré Rance, was planted early in January, 1857, against a south aspect of a twelve feet high brick wall. Its roots were carefully mulched over with short stable litter, and they were frequently supplied with water during the warm summer months. The tree had been growing vigorously the previous year, supported apparently principally by two roots which had penetrated into the ground and had been cut rather too short in removal, leaving but a few small fibres round the collar of the plant. No perceptible attempt was made during that warm summer to put forth a leaf, and it was removed the following winter to be replaced by another, the bark being still green. I had it planted against a wall with an east aspect, where it remained through the second summer in the same inactive state. A graft taken of it on the 19th of June last is now putting forth vigorous buds, and a graft taken from it last week will, I feel confident, be attended with the same success. I had it replanted against the same wall a short time since, and it has now more the appearance of swelling its buds and still growing than it has had for the two past seasons. Instances of plants living through one season and growing the second are not unfrequent, but I have never heard of one surviving a second year with a chance of growing.—J. W., in *Gardener's Chronicle.*

IT is reported on good authority that the Indian Council has commissioned Mr. Clement Markham, a relative, we believe, of the Earl of Ellenborough, to proceed to South America, for the purpose of procuring seeds and plants of the various kinds of Cinchona, or "Peruvian bark" trees for transmission to India—an operation demanding not only great energy, but a very considerable amount of practical knowledge in gardening, as well as much botanical experience.

AT a late London exhibition of Pitcher plants, Messrs. Veitch and Gedney exhibited splendid collections, in which were noble examples of latana, Hookeri, lævis, Rafflesiana, distillatoria, ampullacea, vittata, and others, all of which excited much interest.

COLORED PLATES.—We have received from Mr. D. M. Dewey, of Rochester, a list of colored plates of fruits and flowers, &c., which embraces a great variety at low prices; the plates themselves we have not seen, but they may be viewed at the publication office, where specimens have been deposited for examination.

PRICES OF WORKS ON BOTANY AND GARDENING.—A part of the Library of the London Horticultural Society was brought to the hammer a few weeks since. As the sale gives a list of books not generally distributed in America, and also throws some light not only on the value of this description of property, but on the taste of the public, we select a few instances. An-

drews' Heathery, 6 vols., 8vo, 3*l.* 5*s*; Bedford's (Duke of) Salictum Woburnense, colored plates, 14*l.* 5*s*.; Ditto Pinetum Woburnense, colored plates, 10*l.* 15*s*., two works of mere curiosity and no scientific value; De Candolle's Prodromus, 14 vols., 5*l*.: Dictionnaire des Sciences Naturelles, 66 vols., 3*l*.; Dictionnaire Classique d'Histoire Naturelle, 16 vols., 1*l.* 3*s*.; Botanical Register, 21*l.* 10*s*.; Andrews' (H.) Botanist's Repository, 10 vols., 4to, 664 colored plates, 7*l.* 7*s*.; Annales du Muséum, 20 vols., russia, and Memoires du Muséum, 20 vols., calf, and Nouvelles Annales du Muséum, 4 vols., calf, in all 44 vols., 4to, 6*l.* 17*s.* 6*d*.; Archives du Muséum, 9 vols., 4to, 8*l.* 15*s*.; Asiatic Researches, 20 vols., (wanting Vol. XVII.), original edition, 19*l*.; Aublet's Histoire des Plantes de la Guiane Françoise, 4 vols., 392 plates, russia, very scarce, 10*s.* 6*d*.; Burchell's Travels in the Interior of Southern Africa, 2 vols., 4to, 2*l.* 11*s*.; Arabida's Flora Fluminensis, 11 vols., folio, in 5, 20*l*.; Bateman's Orchidacæ of Mexico and Guatemala, folio, 13*l*.; Cavanilles Icones, 6 vols., 4to, 9*l.* 9*s*.; Chandler's Illustrations of Camellias, 3*l.* 3*s*.; Flora Danica, fine paper, 10 vols., folio, 23*l.* 10*s*.; Gallesio's Pomona Italiana, 2 vols., folio, 20*l*.; Griffith's Posthumous Papers, 11*l.* 5*s*.; Hooker's Exotic Flora, 3 vols., 8vo, 3*l.* 1*s*.; Lindley's Genera and Species of Orchidaceous Plants, 1*l*.; Hooker and Greville's Icones Filicum, 2 vols., colored plates, 11*l*.: Jacquin's Eclogæ, 10*l.* 5*s*.; Jacquin's Icones Plantarum Rariorum, 3 vols., 11*l*.; Jacquin's Hortus Schœnbrunnensis, 4 vols., folio, 13*l*.; Lambert's Description of the Genus Pinus, original edition, 9*l*.; Lindley's Sertum Orchidaceum, 11*l.* 15*s*.; Melville Island Herbarium of dried Plants, forming a complete Flora of Melville Island, and unique, 3*l.* 18*s*.; Redouté's Roses, 8vo, 1*l.* 10*s*.; The Linnean Society's Transactions, 20 vols., calf, and 6 parts sewed, 9*l*.; Loddiges' Botanical Cabinet, 20 vols., large pages, 9*l.* 15*s*.; Royle's Illustrations of the Botany of the Himalayan Mountains, 2 vols., 4to, 4*l.* 19*s*.; Ruiz & Pavon's Flora Peruviana, 4 vols., folio, 7*l.* 17*s.* 6*d*.; Sibthorp's Flora Græca, 10 vols., folio, 60*l*.; one of the very few original copies in existence; Sinclair's Hortus Gramineus Woburnensis, the folio, illustrated with dried specimens, in bad condition. 2*l.* 11*s*.; Wallich's Plantæ Asiaticæ Rariores, 3 vols., folio, 12*l.* 17*s.* 6*d*.; Sowerby's English Botany, 36 vols., and Supplement, 24*l*.; Sweet's Geraniaceæ, 5 vols., 5*l.* 10*s*. Among the botanical and other drawings the following prices were realized: Ferdinand Bauer's Delineations of the genus Passiflora, 40 exquisite drawings in colors, with 40 other drawings of the dissections, 15*l.* 15*s*.; Chinese Drawings, 4 vols., containing 132 drawings, 18*l*.; Chinese Drawings of Plants, 5 vols.; undoubtedly the finest set in Europe of authentic Chinese drawings of plants, 70*l*.; 230 colored Drawings of Fruit, by W. Hooker, Robertson, Barbara Cotton, and others, 10 vols., 49*l.* 10*s*.

Correspondence.

J. JAY SMITH:—When I had the pleasure of seeing Mr. Saxton here, he requested me to present you with some statistics of fruit, and more particularly of the Strawberry in our vicinity and in our markets. I have taken great pains to obtain both from my own knowledge and experience, as well as from others, fruit-dealers, &c.—particularly from Mr. Stacy, who has extensive transactions with fruit in all parts of the Union. The best yield of the Hovey, upon the most suitable soils, and under the most judicious cultivation, is from forty to fifty bushels to the acre. This is on our new lands, the virgin forest soil, composed of disintegrated limestone and vegetable loam, the only kind of land really well suited to the Hovey and Hudson berries, and the best also for the raspberry; thirty to thirty-five bushels of the Hovey is the average crop. The Washington or Iowa, our earliest market berry, and very valuable to us on that account more particularly, produces almost any quantity. This last berry does not require rich land, but does best on quite moderately rich soils, and well even on quite poor nobs. The profits of the Hovey, under the best circumstances, are from $100 to $120 per acre, clear of all expenses

of paying and boarding hands, chiefly children. The newest virgin soil is the best for *all* berries here.

The *Willey's Seedling* will produce one hundred bushels to the acre, but is only fit for our market, as it is too small to ship to distant places; in one instance one hundred and thirty-five bushels of the Willey were gathered on the first picking. Immense quantities of berries are consumed here, shipped to other distant markets around, and put up in cans for Winter use. The price ranges from ten to twenty-five cents per quart, according to size and quality—size chiefly. There is a rapidly increasing commerce in the exchange of fruits at a distance, according to the season, of course, of each locality. Mr. Stacy could have shipped two thousand more bushels this season if our continued early drenching rains, and a sudden dryness afterwards had not too much dwarfed their size. The instructions of our Horticultural Society as to proper and successful culture have of late rather diminished the outside demand for the berry, as people at a distance are beginning to raise them largely for their own markets. As to the raspberry, now becoming as important a fruit here as the strawberry, the Black Caps produce, average crop, thirty to thirty-five bushels per acre; average price for the last five years $3 50 per bushel. The "Red Cane," or "Cincinnati Red Antwerp," or most probably the "American Red," of Downing, produces about twenty-five bushels per acre, average crop, and average price $4 50 per bushel. The Red variety holds out in bearing the longest. Our fruit dealers consider at present the Washington or Iowa, Hovey and Hudson still to be recommended for market culture. There is still a great difference in success as to kinds at twenty-five miles distance, on account of difference of soil, &c. Some of our cultivators are, however, going to give Wilson's Albany a fair trial, as it seems to promise much. McAvoy's Extra Red is also highly praised as a market fruit by many. It is, however, acid; but all berries, at any rate, require much study and experience on all points, for extensive market objects, before they can be safely decided upon. The Allen raspberry is one of which a good deal may be expected, as exhibited with us; for its large size, bright red color, firmness for carriage, uniformity of yielding qualities and complete hardiness. The Kirtland, also; but it is not large, and its color is more dull, but it is quite hardy.

Our grape crop will be immense, if mildew and rot do not commit the ravages they have done several years past; and it is getting late, and therefore things look quite favorable at present. Our peach crop will be about half a crop; many are injured greatly, as well as all our fruits more or less this year, by that increasing pest—the curculio. Our apple crop is very slim, but pears much better. Yours, &c., E. J. HOOPER, *Sec. Cin. Hort. Soc.*

Cincinnati, July 1st, 1859.

DEAR SIR:—I have, for two weeks, been trying to make up my mind to send you an account of our Peabody strawberries for the *Horticulturist*, but I am afraid that communications upon this subject are pouring in upon you so thickly now that you will hardly care to look at one from a new pen.

Well, I certainly am not one of those who pronounce against this splendid berry. I have given it a fair trial and, so far, it has far exceeded my highest expectations in all the essentials of a fine fruit—productiveness, flavor and size—and intend to confine myself hereafter principally to the cultivation of it alone. I have Wilson's and Hovey's seedlings, Boston Pine, and Longworth's Prolific, but none would compare with the Peabody. Last Spring, a year, I sent to Mr. Peabody for fifty plants. It was very late in the season and only thirty out of the package lived. From these I have now about one hundred and sixty plants in full bearing, and at least two thousand runners, which will bear next season.

I planted them in a rich, deep soil, which had been trenched and prepared for a grape-border, thinking I would remove them in the Fall, but they made such astonishing growth that I have left about half of the original thirty in that bed, and I am sure it would delight you to see them now. I have kept them from making runners and stimulated them by applications of liquid

manures, soap-suds, &c., until their trunks are as large as good sized radishes, and the leaves could not be covered with a bushel measure without pressing. I have seen some of the finest plants in Maryland, Delaware and Pennsylvania, but none were equal to these.

When I first saw the representation of this plant, in the Patent Office report, I thought the idea of such leaves and fruit was preposterous; but the leaves on my plants are fully as large, and the fruit has reached to the second size there represented and I have strong hopes of reaching the first; if not this year certainly the next.

Several of the strawberry venders in our market, to whom I shewed a box of them, begged me to let them have them if we had any for sale, for they "could get any price for them," as two of them remarked. Such is the Peabody, as I have proved it: and that, too, the first year, when the experience of many say it is far better the second and third year.

Now, Mr. Editor, why is it that those who supply our markets do not raise such fruit for sale? It takes no more ground, is far easier to cultivate and pick, measures more when picked, and brings three times the price. I am a novice in the cultivation of fruit, know almost nothing about it, and yet here is the result of my first experiment with strawberries:—Our bed, this year, was about thirty-eight feet long by five feet wide, from which we have gathered between thirty and forty quarts of fine large berries; beside this there were quite that many small ones left to rot, for want of some one to pick and eat them.

I must not forget to mention one thing about the Peabody strawberry. I am inclined to think it will not bear transportation. Last week I carried a small basket of them to Wilmington, Delaware, and, although I had them with me in the express train, by the time we arrived they had ripened and wilted considerably. If it had not been for this, I should have sent you some, and may do so yet, by pulling them a little before they are fully ripe.

Baltimore, June 17th, 1859. Very truly yours, CHAS. REESE.

[This is a famous success indeed, differing materially from our own and that of our neighbors.—ED. H.]

NOTES ON STRAWBERRIES.—The strawberry crop this season has been very productive, and much valuable knowledge has been obtained with reference to the comparative merits of sorts. It is agreed on all sides, that Wilson's Albany seedling is one of, if not *the* greatest of bearers, completely setting at rest the question, whether or not a hermaphrodite will produce as good a crop as a pistillate, even when the last is placed under the best conditions to ensure perfect fertilization from accompanying staminates.

The success attending the culture of foreign sorts has not hitherto been very encouraging; few of them coming up to the standard of their home reputation. Some of the more recent importations—as the Triomphe de Gand, Trollope's Victoria, and Vicomptesse Hericart de Thury—give promise of great excellence, as well as productiveness. The most beautiful crop we have ever seen was a bed of Trollop's Victoria the present season. Alongside of the Albany seedling it was considered to have produced as many quarts as it, although the berries were more numerous on the seedling. We question whether there is a finer flavored strawberry in cultivation than the "Vicomptesse;" and the "Victoria" is also of a rich, pine-apple flavor, and for size and beauty cannot easily be excelled.

We have heretofore been unable to account for the opposite and conflicting records of experience with foreign varieties. At the last meeting of the Pomological Convention, several cultivators spoke highly in favor of the kind known as British Queen (a distinct variety from the Victoria), while others had found it all but worthless. We are strongly inclined to believe that much depends upon the nature of the soil. In shallow, or light sandy or gravelly soils, these foreign varieties do not attain much perfection; while in deeply worked clayey loams they will produce abundant crops of the highest degree of excellence.

Another point has been clearly established; and that is: to cultivate in distinct hills or plants, rigidly destroying all runners during the Summer. Strong growing kinds, as the Peabody

seedling, Genessee, Longworth's Prolific and Boston Pine, cannot be raised to perfection if allowed to run into a dense thicket of foliage; but when planted eighteen inches apart, in rows, and kept clear of runners, they will thoroughly mature their flower buds and ripen every berry that sets.

When the soil is well enriched near the surface, and the plants allowed to run over the ground, a strong growth of leaves and little or no fruit will be the result; this has originated the idea that the soil prepared for strawberries should not be treated with putrescent manures, because the tops will outgrow the fruit. Such will not be the case if the plants are allowed plenty of space; the best fruit can only be obtained by planting in well manured and well trenched strong loam, or even a stiff clayey soil, planting widely apart at first, and keeping all runners constantly removed. W. S. G.

A NEW HARDY WHITE GRAPE—THE KING.—As new varieties of grapes are occupying a good deal of attention at present, it may, perhaps, interest the readers of the *Horticulturist* to have a description of a new white grape, which seems to be perfectly hardy in this city, and of which the flavor is good—not equal, perhaps, to the finer foreign grapes, but still very good, being free from pulp and foxiness. Like many of our most valuable varieties of fruit, it was an accidental seedling which sprung up in a private garden in this city, and first fruited in 1857. Whether it originated from the seeds of the Sweetwater, Isabella, Black-cluster or Clinton, it is, perhaps, impossible to tell; but as it coincides perfectly in habit and foliage with the latter, it is probable that it is derived from that grape. However that may be, it seems to be as hardy as the Clinton; the small twigs on young plants, though unprotected, having been perfectly uninjured during the past Winter. The bunches are medium, shouldered, compact; berries medium, round, sweet, free from pulp, good flavor, white; ripe, middle of September. It was exhibited at the Fall meeting of the Fruit Growers' Society of western New York, and elicited the warmest commendation of the Committee on Native Fruits, who did me the honor to name it the King Grape. WM. KING.

Rochester, N. Y., June 24th, 1859.

J. JAY SMITH, ESQ.:—A public journal like the *Horticulturist* is public property, and the same public who pay for it have a right to receive information from every page; personal differences have no business in it, unless they are so managed as to convey an equivalent amount of benefit to the subscribers collectively; and, even then, common courtesy ought to be shown by the debaters. Taking this view of the subject, I do not wish to offer any comments on Mr. Eaton's reply in the July number, headed "Facts in Grape Culture," but leave the public to decide the matter as it stands at present. I would, however, say to your correspondent that I am willing, with your permission, to discuss the points at issue with him, in a truly philosophical, and experienced practical manner, provided he will refrain from any personalities, and confine himself to real principles, without mixing up mere assertions, and thus enable us both to give the many readers of your widely spread journal the best knowledge we possess, and, perhaps, explain something of the right system of ventilating plant-houses.

Yours, most respectfully, WM. CHORLTON.

New Brighton, S. I., July 1, 1859.

MR. EDITOR:—I observed an article on evergreens in the May number of the *Horticulturist*, by H. W. Sargent, Esq., New York, in which he seems to think Cupressus Funebris cannot thrive under the direct rays of the sun. We have tried it the past three years with success, and consider it one of our handsomest and best evergreens; the severe winter of 1857 and 1858 browned it badly, but with the warm days of Spring it recovered its original color. With all due respect to Mr. Sargent, according to our experiment, it is the cold and not the hot sun which affects it. The other plants mentioned do very well with us also—the English Laurel, which passed through the Winters of 1857 and 1858, uninjured, though very severe for this climate; the

Heath-leaved juniper has passed the late Winter very well, without protection; gardenias and cape jasmines stood the past Winter without browning, but were generally killed to the ground the two former Winters. Verbenas have gone through the past Winter without injury; they were in full bloom April 15th. HAMILTON J. CARTER.

Raleigh, N. C.

EDITOR HORTICULTURIST:—In reply to the inquiry in the last number, for a means to prevent the bleeding of the grape-vine, I will give that which has always proved effectual with me. Cut the end of the branch so as to take off sharp corners. Stretch over it, as a cap, a thin piece of gum-elastic, and tie tightly with a strong thread; over this put a piece of linen or muslin; tie that also closely, and the bleeding will be stopped. My first trials were without the linen; the gum stretched to the size of a hen's egg and burst, throwing out a fine stream of sap to the distance of a foot or more. Gum caps or *thimbles*, made purposely, would be much more convenient than sheet gum. Respectfully yours. J. WILLIAMS.

Philadelphia.

THE CLEVELAND HORTICULTURAL SOCIETY'S EXHIBITION.

THE June exhibition of the Cleveland Horticltural Society, which took place on Thursday and Friday, the 16th and 17th, was a success in the fullest sense of the word. The late frosts and heavy rains destroyed, or at best injured, much fruit and many flowers; still the show of both was excellent, and gave good evidence of the taste and skill of our amateurs and professional men. Beaumont & Co.'s exhibition of greenhouse plants was superb; it covered entirely one of the very large tables with a blaze of beauty. Many of the specimens were rare, and all were choice. Both this, and their fine collection of fuchsias and verbenas took first prizes. B. H. Bohmer had a small but very good collection of plants; Pollard a good show of pelargoniums; and Whitworth had also greenhouse plants, but not entered for competition. His verbenas took the second premium, and his floral design the first. H. B. Hurlbut had also a collection of greenhouse plants not entered.

Cut flowers were fine, although the heavy rain of the previous day had destroyed a great many, and hindered amateurs from competing for the premiums on verbenas; the flowers of all plants of this kind, out doors, being spoiled.

Roses were many, and good; Joseph Perkins, Esq., taking the first premium for the best and largest collection; nearly all his plants having been obtained directly from France. Lord Raglan was the finest. La Fontaine, Caroline de Sansal, Hermanee, Lion des Combats, Alice Leroy, M'me Hector Jaquin, Lavacca, Princess Amelie, Louisa Odier, Sydonia and M'me de Lamoricier were very fine. Mrs. Kirkpatrick took the first premium on twelve dissimilar blooms. This lady, also, exhibited some very fine phloxes, M'me Carl Wagner being the best. This is the best phlox we ever saw. Mrs. Styles had a good collection of unnamed roses, that were well grown. Mrs. Shelly's baskets of flowers exhibited good taste and skill; Mrs. S.'s flowers are always fine.

Bouquets were "thick as blackberries," and many of them of first quality. Mrs. Pease, daughter of Prof. Kirtland, had two.

For this season of the year the show of fruit was all that could be desired. Strawberries and cherries were abundant, and of the finest sorts. Dr. Edward Taylor, President of the Society, P. Sells, whose twenty acres of strawberries we noticed a few weeks ago, and others exhibited. Many of the new varieties were exhibited under common cultivation in this city for the first time. Wilson's Albany Seedling was deemed the best, everything considered. Cherries, notwithstanding it was rather too early, were plentiful and fine. Mr. Charles Pease was the largest exhibitor, and took the first premium. These cherries were from the old trees of his father-in-law, Prof. Kirtland, and included many of the choice sorts originated by him. Mr. P. had also on exhibition a number of very superior seedlings to which the committee awarded a premium.

In vegetables, the show as usual, at all such exhibitions, was not large; but Mr. E. S. Willard's pie-plant, etc., would be hard to beat; and Joseph Perkins' onions and cucumbers were of first quality. A. Stone, Jr., had some very fine new potatoes.

To the officers and members of this Society must be awarded all praise for their efforts to encourage horticulture; but to the ladies, who so nobly seconded their endeavors, and aided so materially in decorating the Hall, must be ascribed all due honor; without them, nothing could have been done, and the visitors and members alike bear witness to this. The Hall was finely wreathed with evergreens in festoons, and everything in good taste. All seemed delighted. The

attendance both evenings was large, and sufficient to meet every expectation of the officers. Premiums were awarded.—*Ohio Farmer.*

FRUIT-GROWERS' SOCIETY OF WESTERN NEW YORK.

THE regular June meeting of the "Fruit-Growers' Society of Western New York," was held pursuant to the call of the council, at Rochester, upon the 23d of that month. The "Genessee Valley Horticultural Society" changed the day of its meeting in order that the exhibition of fruits and flowers might be combined, and prove the best as well as the largest ever made at this season in Western New York.

The "Fruit-Growers'" session duly commenced in the forenoon, the president, Benjamin Hodge, in the chair. Messrs. P. Barry, W. P. Townsend, and S. H. Ainsworth, were appointed a committee to report the subjects for discussion.

The first regular question discussed was as follows: "Are there any benefits to be derived from the practice of ringing, ligatures, girdling, &c., of the grape-vine? and if so, what are they?"

Mr. Peck reminded the members of some bunches of grapes of perfectly enormous size exhibited in these rooms last fall; the extra growth of which was supposed to be owing to the removal of a ring of bark from the branch below the bunches exhibited.

Mr. Townsend, of Niagara county, spoke of having seen last fall at the State Fair, in Buffalo, some grapes from Chautauque county, which were quite a feature in the exhibition. The owner said that they were only the common Isabella grapes, and yet there were those who so far doubted his accuracy as to call upon Mr. Charles Downing (who was present) for his opinion as to whether the Isabella could ever be or become so large and fine a grape. After a good deal of inquiry, it was found that the portion of the vine which produced these specimens stood near an angle of the house where there was a good deal of passing, and where some accident had happened breaking the branch, or rupturing the downward sap vessels. The balance of the crop was of the usual size, and it was only the portion above the wound which produced these grapes. This practice of ringing is quite common in France and Germany. The operation is performed annually, and the result is that the size is considerably increased, and the fruit is ripened from one to two weeks earlier. A neighbor, Mr. Paign, often tied strings around the branches of his vines, and his crop was always increased in size and hastened in maturity.

Dr. Spence feared lest the effect of thus stimulating the growth of one year should be to lessen or destroy the prospect of future crops from that branch. Mr. Townsend thought that the vine could be thus treated with far greater safety than any other fruit-bearing wood, because our most experienced fruit-raisers, are all adopting the renewal system of training their grapes; whereby the branches which have borne the fruit are each year cut off and thrown away. Now, since we expect no future crop from these branches, what harm can be done to them if we pursue the course which will make the present crop as large as possible? The branches from which we expect the next year's grapes are not interfered with at all.

Mr. Wm. B. Smith remembered the grapes from Chautauque county, spoken of by Mr. Townsend, and his recollection was that the time of maturity was *not* hastened by the accident to the vine. To be sure, the grapes were almost twice the size of the ordinary Isabella; but, if he remembered right, the grapes were not quite ripe.

Judge Langworthy spoke of a mode of ligating branches of apple and peach-trees with a small annealed wire; applying the wire soon after the fruit had set. but removing it again after a few weeks. This ligation accelerated the period of the ripening of the apple and of the peach materially, and reasoning from analogy it ought to do the same with the grape.

Mr. S. H. Ainsworth spoke of some grapes, fully as large as the Black Hamburgh, which at the Ontario County Fair two years ago attracted considerable attention. Like the owner of the Chautauque county grapes, at Buffalo, nobody believed the exhibitor of these when he stated them to be simply Isabellas. Such an enormous increase of size caused a critical examination into the cause why, and it was found that near the ground a tendril had closely entwined itself the previous year, and very materially hindered the return flow of sap for that year; so that the whole force of the vine went into the fruit, which was very ripe, and in quality very fine. All the rest of the fruit upon the vine was perfect and of the usual size; but the fruit on this part was enormous—and this was the only lot of grapes exhibited at that time which was perfectly ripe: so that the ligation did in this case hasten the ripening.

Mr. Hoag, a grape-grower, remembered that several years ago, a part of one of his vines became accidentally girdled, and the one cluster which was beyond the accident ripened up perfectly, while the rest of the fruit did not mature that season. Here is one more instance where girdling hastened maturity.

Mr. Ainsworth now recollected a case similar to that of Mr. Hoag, in which two bunches were more than two weeks earlier than the rest of the crop, and the berries were fully doubled in size.

Mr. J. J. Thomas, of Cayuga county, doubted whether increasing the size of the fruit, or hastening its maturity by any such artificial processes, could possibly improve its quality.

Mr. Hoag would judge from the specimens which he had tasted that the quality was improved. If the grapes were really ripened they were better than unripe "sour grapes."

Mr. Maxwell would judge that the time when this girdling was done would exercise an important influence upon the result. Immediately after the fruit had set was the proper season to perform it. The operator must not remove too large a part of the bark, else he will kill vine and fruit. A very narrow ring of the bark was enough to remove. An old gardener, in Geneva, had long practiced this wiring or ligating, and always with very evident effect; both as to size and earliness.

Judge Langworthy agreed that about the time of the setting of the fruit was the best time for the ligation. A neighbor used always to bring the first peaches into the Rochester market, also the first early harvest apples, (and would say to Mr. Thomas that their flavor was as good as any others,) and he kept his process a secret for some time. By-and-by, it was found out that just after the fruit had set, he twisted a piece of fine wire closely on the old wood of the branches, and it did great good—when the fruit had nearly matured, he removed the wire, and no bad effect resulted to the tree.

Dr. Spence asked Mr. S., "Would you recomend this girdling of trees as a steady practice?" since it so probably produces an abnormal condition of the tree.

Judge Langworthy answered "No," for in a great many cases the limb of the tree is sure to be lost.

W. P. Townsend. This may be so with trees, but with the grape-vine the case is widely different. Even if a very large portion of the vine be cut away, it will recover itself very much in a single year: and where the regular pruning of the vine is done upon the renewal system, the part ligated is that which is to be cut away in that same autumn, and the vine itself is actually renewed annually. The results cannot but be nice.

P. Barry, spoke of the experiments instituted by the French, in 1856. The Horticultural Society of Paris, was so much taken by the specimens which were presented to them, that they sent out a Committee to examine the condition of the vines upon which the operation had been performed. It happened that that season was a particularly favorable one, and that all the grapes were ripened that year, so the gain in earliness was not considered as proved.

This ligating the vine is an old practice known and practiced in the time of the Romnas. Mr. Knight, an eminent English writer speaks favorably of the practice under suitable restrictions; as also does Mr. Rivers. Mr. Barry did not feel convinced that it was a course which was to be recommended for general practice; but in the hands of gardeners of judgment and experience, it does add to the size and hasten the maturity of fruit. While it does not injure the quality of the fruit so increased in size, it probably does deteriorate the rest of the fruit and most certainly does injure the roots.

This course can be practiced upon the grape-vine with more impunity than upon any other plant, because it makes new wood so easily. This is an interesting matter and well worthy the attention and the experiments of gentlemen.

Mr. Townsend hoped that the members would experiment and give us their results. Could not quite agree with Mr. Barry as to the injury to the rest of the fruit or to the roots. Let us take an Isabella pruned according to the renewal system and we thus have in fact two vines, taking sap from the roots perfecting it in the leaves and returning a part to the roots. Now by the girdling we only interfere with the processes of a part of one of these two, and the only loss to the root is that of the sap appropriated to the extra development of the fruit and the growth of a little more wood.

Judge Langworthy thought that if the ligating were only around the growth of this year, no effect would result ill to the vine. If the main vine be girdled Mr. Barry's idea is correct, and the roots must be injured. (Judge L. does not speak of the renewal system where only the wood to be cut away the next year was girdled, and full half the wood not interfered with and the main vine never touched.—*Reporter*.) If there be any benefit in it at all it will be very evident in its application to the Catawba vine, for the gain of a fortnight in ripening will be very important in this climate. Strongly urged members to try it: use a small annealed wire, twisting firmly with pincers and we may this fall see at our next meeting what few of us have ever seen; i. e. a ripe Catawba grape.

Wm. B. Smith hoped the members would all experiment, and at the September meeting relate and exhibit the results of their experience.

The second regular question was now in order. The late frost. What has been its effects upon the grape, both with reference to the present and next season's crop?

This subject of the frost has been so fully commented upon in the Agricultural papers of the day, that we do not think it necessary to repeat it.

The third regular question was now in order, viz.: Which are the best varieties of strawberry

for general profitable cultivation according to the present experience? and which is the most profitable and at the same time most economical mode of cultivation?

Mr. H. N. Langworthy said that we ought first to fully understand what were the qualifications which we desired in the strawberry plant. We certainly, in this latitude, wish hardy plants, to withstand the severities and changes of our winters. We want berries of a good size, of a bright, attractive color, of a fine flavor, with the flesh hard and firm, so that it will bear carrying to market. We also wish the vines to have good strong foot-stalks to keep up the berries from the dirt while ripening.

L. B. Langworthy thought Wilson's Albany was the greatest bearer; as to size it was very fair, as to flavor pretty good. Triomphe de Gand is of enormous size, but feared it would fall off as to size when cultivated in fields for market. Knew that the Hooker makes a good field culture berry, and does not run down.

C. M. Hooker, of Monroe Co., said that Triomphe de Gand must be cultivated in hills in order to be good for year after year.

J. J. Thomas, of Cayuga Co., spoke very highly of Wilson's Albany. Peabody's Seedling, although of good flavor always, did not fill all the conditions above stated. For a couple of years the fruit is excellent and very large, but the vine has such a strong tendency to cover the ground with runners, that unless kept in hills they bear very little. Some gentlemen speak of the flavor of the wild strawberry as being always superior to that of the cultivated. Now this depends very much upon the condition of the *eaters*. A person who is hungry for fruit will call anything good, while those who have abundance are a little more nice in their taste.

The commendation of Large Early Scarlet was unlimited. Three of the members had found the Hooker to be not quite hardy to withstand the changes of our winters. A kind of mulching was mentioned, which commended itself to us very much. Dig in the fall a sufficient quantity of black muck, which spread in proper location to freeze and thaw during winter. It will thus be as fine as white sand, and (though of different color) as clean, while it will have no seeds of any sort in it. This spread over the beds acts as a mulch, protects from the cold in winter, is an excellent fertilizer, and assists in keeping the fruit clean.

A gentleman here insisted upon introducing the subject of diseases of the Pear, and presented the stumps of some of his standard pear-trees which had died this spring in what was (to him) a very singular manner.

In the evening, at "Corinthian Hall," the exhibition of fruits was combined with that of flowers, &c., by the Genessee Valley Horticultural Society, and attracted a vast crowd.

BUFFALO HORTICULTURAL SOCIETY.

The June exhibition of the Society was held at St. James Hall, on June 23d and 24th. The hall was very handsomely decorated with flowers.

Taking into consideration the extremely unfavorable weather, the exhibition was an undoubted success. In fruits, the show of grapes, cherries and strawberries, particularly the former, was very interesting, and the various collections embraced the following sorts:

Grapes—Black Hamburg, Grizzly Frontignan, West's St. Peter's, Zinfindal and Pitmaston White Cluster, from the President and Hon. E. G. Spaulding.

Cherries—American Amber, Mayduke, Bigarreau, Bigarreau de Lyon, White Bigarreau, Ohio Beauty, Doctor, Cleveland Bigarreau, Rockport Bigarreau, Black Tartarian, etc., from Messrs. Hodge, Eaton, Manley, Coppock, Bullymore, Coats, Clark and Stevens.

Strawberries—Wilson's Albany, Monroe Scarlet, Bicton Pine, Schreike's Pistillate, Necked Pine, Longworth's Prolific, Hovey's Seedling, Crimson Cone, Large Early Scarlet, British Queen and Peabody's Seedling, from Messrs, Townsend, Warren, Beecher, Coppock, Needham, Playter, Presbrey and Barton.

Currants—White Grape, Cherry, May's Victoria and Black Naples.

The grapes were the feature of the exhibition, and attracted universal attention. They were mostly well grown and colored, and reflected much credit upon the producers. Prizes were awarded.

In flowers the entries are too numerous to specify the contributors. Roses were badly affected by the frost, and fewer in number than on former occasions. Miscellaneous flowers were abundant, as well as pot plants, and beautiful bouquets were presented.

The show of vegetables was limited, although fine rhubarb, radishes, cucumbers, &c., were exhibited, and no prizes were awarded in this department.

REGULAR MEETING, JULY 5TH.—This being the day for the award of prizes on forced grapes and cherries, a fine exhibition of these two fruits was made. Over forty varieties of cherries were however on hand, together with several fine collections of currants, and many fine roses, &c.

JOHN B. EATON, *Recording Secretary.*

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